DOCUMENT RESUME

ED 061 413 VT 014 645

TITLE	Writing Performance Goals: Strategy and Prototypes. A Manual for Vocational and Technical Educators.
INSTITUTION	McGraw-Hill Book Co., New York, N. Y. Gregg Div.; Ohio State Univ., Columbus. Center for Vocational and Technical Education.
SPONS AGENCY	Office of Education (DHEW), Washington, D.C.
REPORT NO	Cen-Rel-Ser-15
NOTE	107p.
AVAILABLE FROM	Gregg Division, McGraw-Hill Book Company, New York, New York, (Product Code No. 24640-8, $3.60 net)
EDRS PRICE	MF-$0.65 HC-$6.58
DESCRIPTORS	*Behavioral Objectives; Educational Objectives; *Educational Specifications; *Educational Strategies; Guidelines; Manuals; *Models; Performance; *Performance Criteria; Performance Specifications; Standards; Technical Education; Vocational Education

ABSTRACT

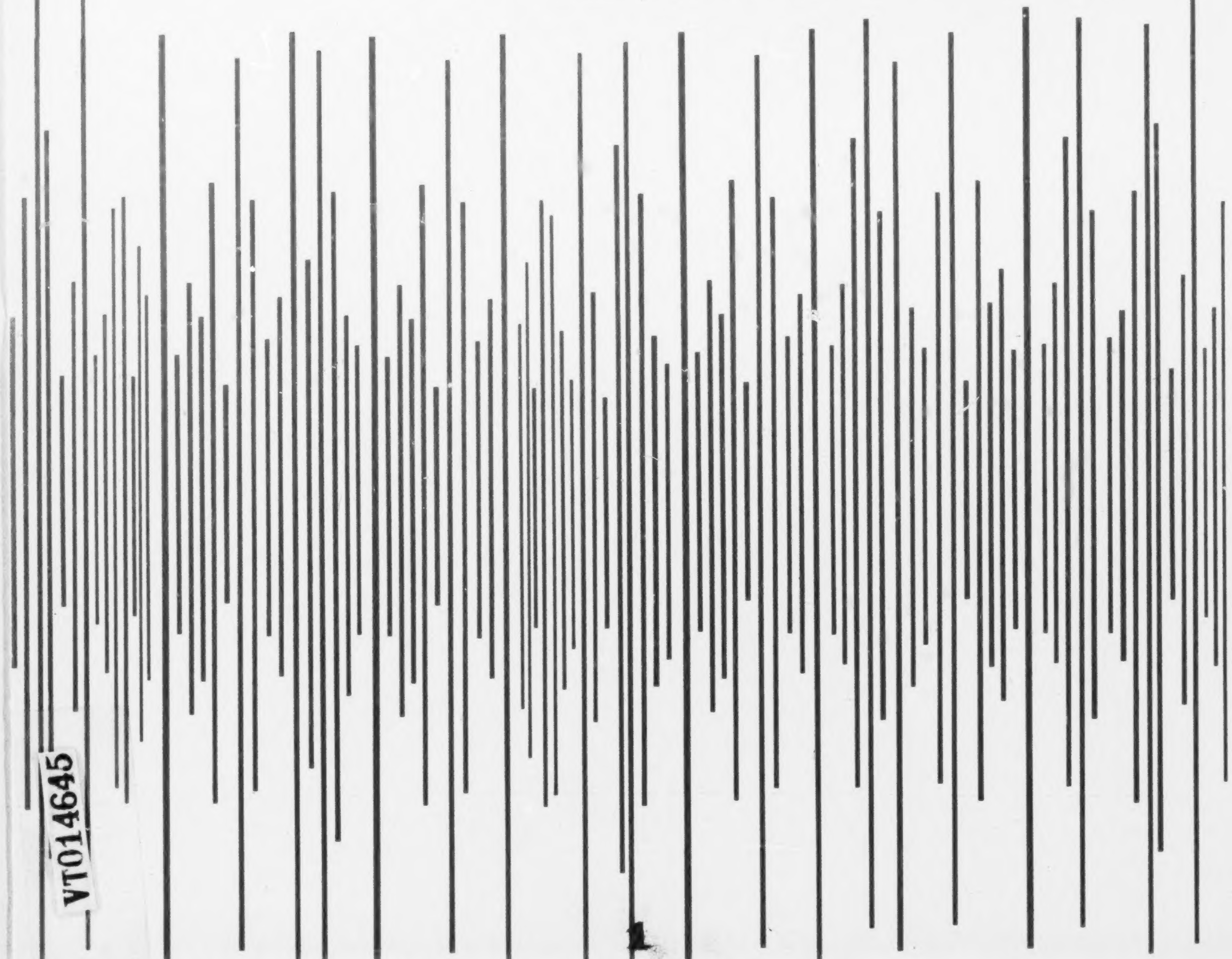
The result of a cooperative project of the Center for Vocational and Technical Education at the Ohio State University and the McGraw-Hill Book Company, this manual was prepared to develop prototypes of performance goals for use by curriculum specialists and developers of instructional materials in vocational and technical education and to provide concomitant guidelines for training writers of performance goals. The document contains two sections, with the first part making up the Manual for Preparing Performance Goals and the second providing Prototypes of Performance Goals. Part I includes: (1) Characteristics of Performance Goals, (2) Definition of Terms, (3) Some Questions about Performance Goals, (4) A System for Writing Performance Goals, (5) The Number of Performance Goals to be Prepared, and (6) Implementation. Part II provides prototype performance goals for various areas of Agricultural Education, Business and Distributive Education, Health Education, Home Economics Education, Technical Education, and Trade and Industrial Education. Numerous charts illustrate the manual. (AW)

ED 061 413

Writing Performance Goals: Strategy and Prototypes

A Manual for Vocational and Technical Educators

Gregg/McGraw-Hill and The Center for Vocational and
Technical Education at The Ohio State University



VT014645

ED 061 413

Writing Performance Goals: Strategy and Prototypes

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Writing Performance Goals: Strategy and Prototypes

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The work reported herein was accomplished by the Gregg Division of McGraw-Hill Book Company in cooperation with The Center for Vocational and Technical Education at The Ohio State University, which is supported by a grant from the Office of Education, U.S. Department of Health, Education, and Welfare. Those undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

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Gregg Division / McGraw-Hill Book Company
New York St. Louis Dallas San Francisco Düsseldorf Johannesburg
Kuala Lumpur London Mexico Montreal New Delhi Panama
Rio de Janeiro Singapore Sydney Toronto

Library of Congress Catalog Card Number: 74-37095
Printed in the United States of America. 1 2 3 4 5 6 7 8 9 0 EBEB 0 9 8 7 6 5 4 3 2 1 ISBN 07-024640-8

Acknowledgments

Many people have helped in the development of this manual. Special credit must be given to the educational consultants who successfully demonstrated that the initial performance-goal analysis models could be adapted for use in various vocational education areas:

Agricultural Education: Dr. William E. Drake, Cornell University

Trade and Industrial Education: Dr. Ronald E. Glenn, Scottsdale, Arizona, Public Schools

Home Economics Education: Dr. Alberta D. Hill, Iowa State University

Health Education: Mrs. E. Joy Hill, University of Kentucky

Technical Education: Dr. Milton E. Larson, Colorado State University

Their contributions, along with those for office and business education and for distributive education, are exhibited in Part II of this manual.

Appreciation must also be expressed to staff members of the Department of Vocational Education at Colorado State University who were consultants in various phases of this project:

Dr. Irving C. Cross, associate professor of agriculture education

Dr. Mary Helen Haas, professor of home economics education

Dr. Ivan E. Valentine, associate professor of research

Special thanks are extended to other specialists who participated in early phases of the project as part of the Gregg/McGraw-Hill research team:

Dr. Robert S. Driska, University of Kentucky, Lexington, Kentucky

Michael Bronner, Instructor, Business Education Department, New York University

Robert H. Nassau, Former Systems Editor, Instructional Systems Division, McGraw-Hill Book Company

Foreword

Vocational and technical educators, being engaged in preparing young people for work, have attended as a matter of course to the identification of the tasks their students must learn to perform. In a real sense, the idea and importance of performance goals for educational programs have a longer history in vocational and technical education than in any other part of the educational enterprise. It is entirely appropriate, therefore, that vocational educators should detect the need and provide a practical handbook for writers of performance goals.

The importance of this volume is that it attempts to remove the writing of performance goals from the growing list of skills available only from a few specialists and to place that capability in the repertoire of all who have need for it. By following the practical methods, procedures, and examples provided in this volume, thousands of teachers, supervisors, and administrators who determine and direct educational activities can engage directly in the important task of defining the performance capabilities to be acquired by their students. In so doing, they can help education take a large step toward the goals of educational renewal we all share.

The Center for Vocational and Technical Education is pleased to have participated in the development of this volume. Thanks are due the McGraw-Hill staff, headed by Dr. Edward E. Byers, for the persistent and inventive professional work that made this volume possible. Thanks are due also to Dr. Harry Huffman, formerly business and office education specialist at The Center, for the original project plan and for technical liaison on behalf of The Center, and to Dr. Edward J. Morrison, research coordinator for The Center, for general management and guidance of the project.

Robert E. Taylor
The Center for Vocational and Technical Education

Preface

Writing Performance Goals: Strategy and Prototypes has resulted from a cooperative project undertaken by The Center for Vocational and Technical Education at The Ohio State University and the McGraw-Hill Book Company. The purpose of the project was to develop prototypes of performance goals for use by curriculum specialists and developers of instructional materials in vocational and technical education and to provide concomitant guidelines for training writers of performance goals.

Relevance and Accountability

The concern of vocational and technical educators to prepare young people for employment opportunities and to ensure accountability for this training has highlighted the urgent need to develop relevant, achievable, and measurable performance goals. This need has grown more pronounced with the emergence of educational innovations such as programmed instruction, modular scheduling, differentiated staffing, individually prescribed instruction, instructional systems, and interdisciplinary curriculum designs. Many school systems are not adequately prepared to apply the new ideas and concepts that are evolving out of current research, and it has not always been possible to adjust instructional programs to reflect significant changes in the relation between education and employment. Thus many of the present instructional programs are deficient in that they have not been fully formulated in terms of anticipated behavioral changes.

Defining Objectives

The kind of objective most commonly written is a statement of broad instructional purpose. Objectives of this type correspond rather closely to the lesson plans that teachers develop. They are concerned essentially with what subject matter is to be covered. The verbs in these statements usually are words such as *know* and *understand* for the cognitive area and *appreciate, value,* and *believe* for the affective area. These terms are useful for some purposes, but they offer little direction to the curriculum writer, the teacher, or the student. Their lack of precision and the variety of possible interpretations create a major roadblock in the path of determining the success or failure of learning and teaching efforts.

A different kind of objective is called a *performance goal* or *behavioral objective.* It specifies what a student will be able to do at the end of an instructional sequence that he could not do when he started. The verbs commonly used in performance statements are action verbs indicating some measurable performance, such as *select, identify, list, describe,* or *compute.*

These two types of objectives may be regarded as complementary. If a general objective is that "the student will understand (or know or appreciate) . . . ," the performance goal may be written simply by adding "as measured by . . ." and including these three essential pieces of information:

- The kind of task that will demonstrate that the student has learned to understand (or know or appreciate).
- The necessary conditions or "givens" for the performance of the kind of task being taught, including the constraints of time or materials.
- The criteria of successful performance.

This manual is intended to facilitate the planning and construction of well-defined objectives and to expedite the exploration of new teaching methods to implement them. A clear statement of objectives and effective curriculum that helps students to meet their objectives may reduce many of the problems of our current educational system.

Contents

Part I_
Manual for Preparing Performance Goals

Characteristics of Performance Goals 1

  Diagram of a Typical Performance Goal 2

Definition of Terms 2

Chart 1. Flowchart Representation of a Typical Performance Goal 3

Advantages of Performance Goals 4

Some Questions About Performance Goals 4

Chart 2. Overall Procedure for Preparing Performance Goals 5

A System for Writing Performance Goals 5

  Step One: Obtain Occupational Analysis 6

  Illustrative Development of a Performance Goal Model 6

  Step Two: List Conditions Using Analysis Information 6-15

Chart 3. Procedure for Developing the Conditions of Performance Goal Instruments 7

The Model—Ability to Adjust to Future Changes in Equipment and Machines 8

  Step Three: Write Individual Performance Goals 15

The Number of Performance Goals to Be Prepared 17

  Step Four: Arrange Performance Goals in Order of Prerequisite Abilities 17

  Step Five: Prepare the General Directions (Task Sequence) 17-23

Chart 4. Procedure for Developing the General Directions for Completion of a Set of Assignments 18

  Step Six: Prepare General Criteria 23-28

Chart 5. Procedure for Developing Typical Criteria (Measurable Steps) 24

  Step Seven: Prepare General Instruction Plan for a Set of Performance Goals 28

  Step Eight: Prepare Specific Instruction Plans for Individual Performance Goals 28

General Instruction Plan for a Set of Performance Goals—Adaptability to Frequent Changes in Equipment and Machines 29-30

Specific Instruction Plan for an Individual Performance Goal 30-31

Implementation 31

Part II_
Prototypes of Performance Goals

Agricultural Education 33

- Plowing with a Farm Tractor 34-35
- Calculating Fertilizer Needs 36-37
- Felling and Bucking with a Chainsaw 38-39
- Eliciting Information from a Customer 40-41
- Preparing and Clipping a Dog 42-43

Business and Distributive Education 45

- Handling Incoming Mail 46-47
- Typewriting 48-49
- Editing 50-51
- Compiling 52-53
- Eliciting and Registering 54-55
- Salesperson 56-57

Health Education 59

- Loading and Operating Mechanical Sterilizers 60-61
- Scheduling and Assisting Dentist in Performing Treatments 62-63
- Interviewing a Patient and Admitting Him to Hospital 64-65
- Cleaning and Making Hospital Beds 66-67
- Transcribing and Transferring Doctor's Orders in Assisting the Nurse 68-69

Home Economics Education 70-71

- Operating Stainless Steel Steam-Jacketed Kettle 72-73
- Setting a Table 74-75
- Supervising and Instructing a Child in Performing Chores 76-77
- Telling or Reading Stories to Children 78-79
- Eliciting Information for Altering and Repairing Clothing 80-81

Technical Education 82-83

- Eliciting Information 84-85
- Operating a Machine in Turning a Straight Shaft 86-89
- Editing an Operating Manual and Parts List 90-91
- Compiling Information for a Technical Progress Report 92-93

Trade and Industrial 95

- Compiling by Architectural Draftsman 96-97
- Power Sawing in Carpentry 98-99
- Eliciting Automotive Information 100-101

Part I
Manual for Preparing Performance Goals

How can the vocational teacher apply the technology of the new education? How can he apply that technology to the development of instructional objectives in order to become more certain than in the past that his students will reach enough of these objectives to be satisfactorily employed? How can he be accountable for what he promises in his objectives? The answer: through performance goals.

How can the teacher enable the vocational student to take an active part in selecting objectives that he wants and needs to achieve? How can the student decide whether he wants to aim toward the goal to which the teacher is directing him? And how can the teacher help the student decide whether he is satisfactorily progressing? The answer: through performance goals.

Performance goals, called behavioral objectives by some people, are not new. In fact, vocational teachers and those in charge of industrial and military training programs have long used them. But a system for writing performance goals has not been available. In other words, the new technology of systems development has not been applied to the expression of performance goals for vocational purposes.

Performance goals, stated in behavioral terms, assist the teacher and student in establishing objectives to make the subject relevant to the lives of the student. How? Performance goals deal with the practical application of the subject matter taught. They are based on how the student performs a given task—as he starts on the job and as he advances in his career. Performance goals precisely describe in educational language the duties of a greenhouse operator, a cashier, a data typist, a head produce clerk, a dental assistant, a salad cook, and a mason.

Performance goals are stated so that the teacher and the student understand them and their relation to career objectives.

CHARACTERISTICS OF PERFORMANCE GOALS

To facilitate understanding, performance goals should have five characteristics:

1. A description of a performance is stated behaviorally in concrete terms to demonstrate that which is measurable and observable (including tolerance levels). Verbs of action are important, such as "proofread a report," "sort auto parts," "fasten a disposable bib in place," "test soil," "turn a shaft," "fit a garment," or "list the features of a product." In addition, tolerance levels of performance reduce the vulnerability to subjective judgment in measuring success. For example, the report should be free of errors in the amounts of money; or the dental patient should find the bib comfortable.
2. A statement of a performance specifies most conditions under which the performance will take place. Thus, stipulations, provisions, and requisites are appropriate that typically are used to describe and define the methods, materials, machines, equipment, and supplies in performing various tasks. Conditions, for example, will qualify a report: how many pages? what is its

purpose? is it statistical? The auto parts: are they gears or parts of the electrical system? The bib: for children or a patient in a dental chair? The soil: taken from bottom land, a bench, upland, or so on? The shaft: straight or tapered? The garment: trousers, jacket, blouse, or skirt? The product: hardware, shoes, perfumes? An emotion or feeling: resistant, negative, cooperative?

3. A description of a performance specifies the steps in proper sequence, when appropriate, that occur when the performance is executed. How does the person decide when to start doing the job or task? What does he do first? What does he do second? If his job is to find something to repair, what does he look for? Which alternatives does he try?
4. A performance goal must be understood universally, so that several teachers can be accountable for the same similar objectives.
5. A performance goal must be relevant in order to effectively motivate the student. It should provide him with a specific objective and make him precisely aware of what he needs to add to his knowledge and skills to achieve that objective. Performance goals are relevant to life when they describe something people do in everyday life or the world of work, what people have to make decisions about, or what actions to take when emotions or feelings are involved.

Diagram of a Typical Performance Goal

A diagram of a performance goal assigned by the teacher to the student appears on page 3 (Chart 1). The student and teacher review the eight (A-H) conditions typically found in a performance, since each condition will affect each of the steps required to achieve the goal. These eight conditions in the large box at the top of the diagram determine how each step is carried out. Observe that the conditions affect the first step carried out by the student. The steps are represented by boxes. When the first step is completed, the student decides whether his performance is correct. A decision is represented by a diamond. In the event that his performance of the first step is unsatisfactory, he must correct his action. Otherwise he proceeds to the second step, third step, and so on until he completes the requirements of the performance goal and satisfactorily meets the criterion for each step.

At this point the reader who is interested in how performance goals can be used by teachers is referred to page 31, *Implementation.*

DEFINITION OF TERMS

Condition: Various types of stimuli (stipulations, provisions, requisites) that control the direction of the task.

A stimulus that one must pay attention to in performing the task.

Criterion: A standard or test by which behavior is evaluated.

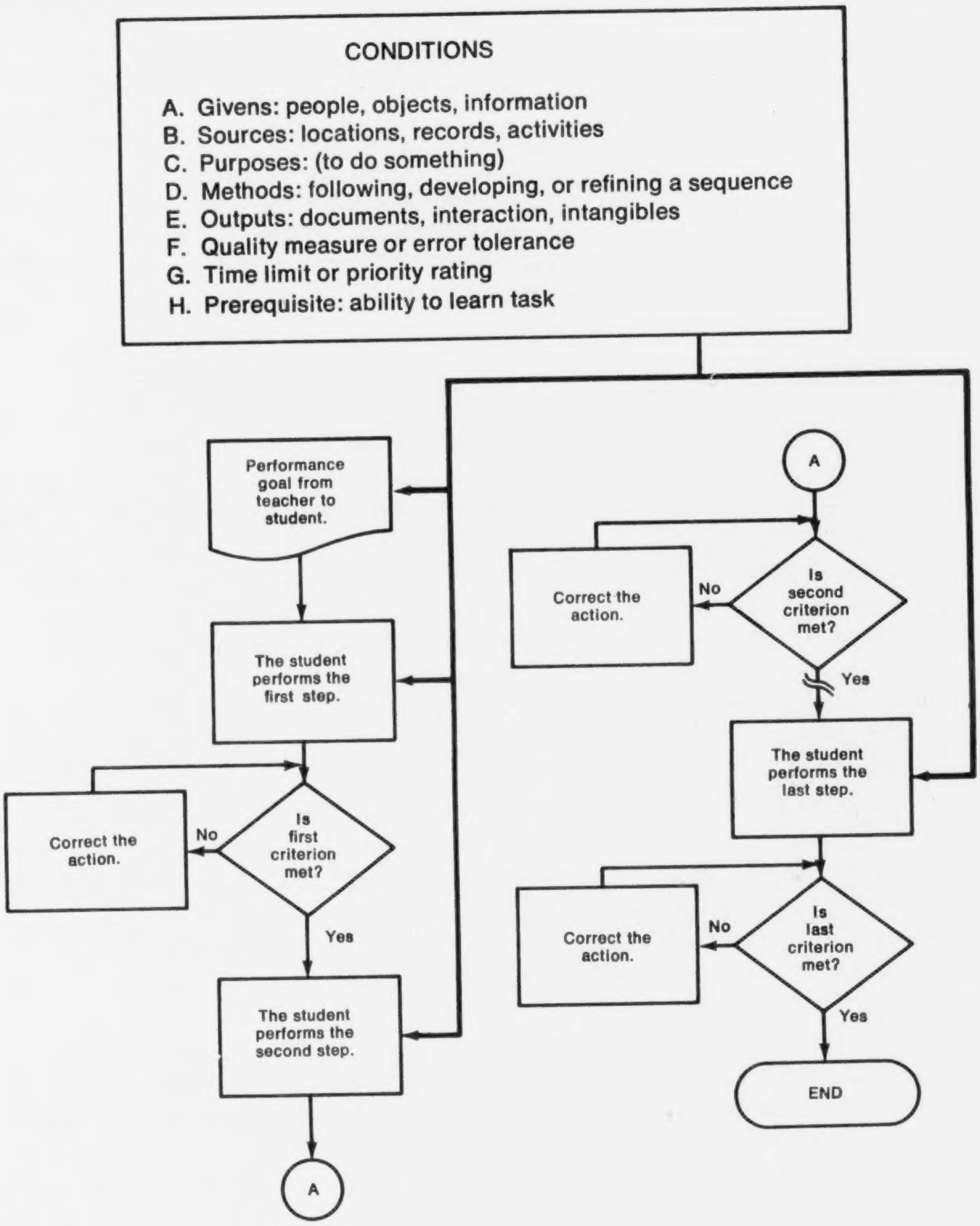
Directions: The steps or tasks employed to achieve or arrive at a performance goal.

General Instruction Plan: The general conditions, directions, and criteria that apply to a set of performance goals.

Interim Behavior: Those undetermined number of intermediate goals each of which must be demonstrated before the next objective is commenced and all of which are vital parts leading to the terminal behavior.

Item: One of the numbered items under the categories of conditions on page 8.

CHART 1. Flowchart Representation of a Typical Performance Goal


CONDITIONS
A. Givens: people, objects, information
B. Sources: locations, records, activities
C. Purposes: (to do something)
D. Methods: following, developing, or refining a sequence
E. Outputs: documents, interaction, intangibles
F. Quality measure or error tolerance
G. Time limit or priority rating
H. Prerequisite: ability to learn task
Performance goal from teacher to student.
The student performs the first step.
Correct the action.
No
Is first criterion met?
Yes
The student performs the second step.
A
A
Correct the action.
No
Is second criterion met?
Yes
The student performs the last step.
Correct the action.
No
Is last criterion met?
Yes
END

Objective: A description of a pattern of behavior that the learner should be able to demonstrate; a blueprint.

Performance Goal: An educational objective that clearly states measurable and observable performance (with tolerances) that identifies for the student and teacher the conditions under which the events or steps involved in learning will take place. (Synonymous with behavioral objective.)

Prerequisite Behavior: Knowledges, skills, and attitudes already possessed by the student that are necessary to learn to perform the assigned task.

Specific Instruction Plan: The conditions, directions, and criteria that apply to a single performance goal.

System: A diagram or flowchart of an activity or organization, containing the interrelated and interacting parts employed to achieve predetermined purposes.

Task or Step: The smallest convenient unit of job activity having a separate purpose; specific statement of action.

A group of activities that generally occur close together and have a common purpose.

Terminal Behavior: The desirable behavior a student should demonstrate by the time the teacher's influence on the student terminates.

Tolerance of Performance: Permissible deviations or allowable variations in quality, quantity, and time measures for acceptable performance.

ADVANTAGES OF PERFORMANCE GOALS

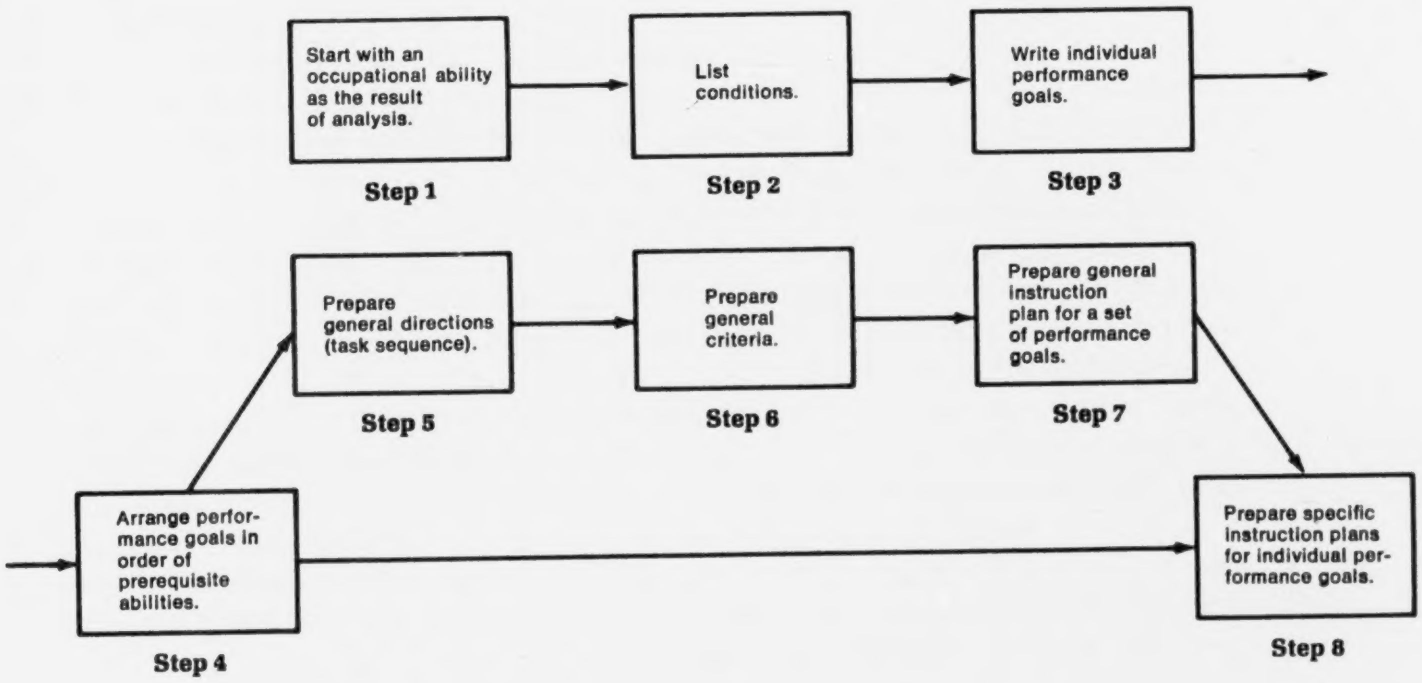
How do performance goals stated in behavioral terms work?

1. Properly expressed goals permit any student to select the material or instructional content he needs on the basis of his present knowledge and skill for learning each new topic. Once the student has the goal in mind he, more than any other person, is likely to know what he already can do and what he cannot do. He may want to read a textbook. He may have some specific questions to ask. He may want to look over the situation, talk with an employee, try it out. He may want assistance in gaining confidence.
2. Statements of performance goals also permit educational objectives, tests, or examinations to be precisely correlated. Thus the student will be given information that relates specifically to the duty or task for which he is being trained. In fact, from the student's standpoint, performance goals tell him exactly how he will be tested, what kinds of paper-pencil questions he will be asked, how he should score on an attitude scale, what kind of performance he will be expected to demonstrate.
3. Performance goals permit the development of well-defined, short learning sequences and curricula, and identifiable conditions of learnings, as well as clearly defined relevant goals, achievement opportunity, and unambiguous evaluation stated in performance terms. As far as the student is concerned, not only does he have objectives he can understand but he also has a planned program of learning that helps him achieve and prepare for evaluation paper-pencil tests, performance measures, attitude scales.
4. Clear performance goals permit the student to learn something he does not know. He is not forced to repeat that which he already knows. They allow the student to begin at the logical place to best advance his individual knowledge of a situation and to relate it to existing job-entry requirements and behaviors. Learning is no longer a battle or game between the teacher and the student, each trying to outguess the other. Learning is in the hands of the student after he and the teacher select an appropriate performance goal. Motivation for achievement on the part of the student requires the selection of a performance goal that is relevant, achievable, and measurable.

SOME QUESTIONS ABOUT PERFORMANCE GOALS

Can explorative and creative behavior be expressed in performance statements? Can compassion be described behaviorally? How many performance goals

CHART 2. Overall Procedure for Preparing Performance Goals


Start with an occupational ability as the result of analysis.
Step 1
List conditions.
Step 2
Write individual performance goals.
Step 3
Arrange performance goals in order of prerequisite abilities.
Step 4
Prepare general directions (task sequence).
Step 5
Prepare general criteria.
Step 6
Prepare general instruction plan for a set of performance goals.
Step 7
Prepare specific instruction plans for individual performance goals.
Step 8

are to be written to define a unit of instruction or a time block or a course? While these problems can sometimes turn out to be extremely complicated, that complexity should not be cause for educators to give up. President Nixon, in his special message on education reform, urged attention to the problems of performance goals when he said:

> "The National Institute of Education would take the lead in developing new measurements of educational output. In doing so it should pay as much heed to what are called the 'immeasurables' of schooling (largely because no one has yet learned to measure them), such as responsibility, wit, and humanity as it does to verbal and mathematical achievement."[1]

The challenge to vocational educators, and to all educators, is to begin the task of writing statements of performance goals that contain elements of creative behavior and attitudes such as flexibility, willingness to learn new things, etc. The task of writing a sufficient number of performance goals may require effort on the part of many people for a long time.

A SYSTEM FOR WRITING PERFORMANCE GOALS

A possible way to write performance goals may be to use an employed person who is both efficient and articulate as a source of information about given job requirements. As an expert in an occupation, he may have perspective on how he achieved his present standing and what his prospects are. However, if vocational educators cannot find such persons, they must turn to occupational analysis and use primary and secondary sources. Chart 2, above, shows the major steps. It is possible to go from Step 4 to Step 8 as will be explained later.

As will be seen in Part II of this report, 30 sets of performance goals were developed by vocational educators.

---

[1] *The Wall Street Journal*, "President Nixon on Education," Vol. LXXII, No. 44, p. 10, March 5, 1970.

Step One: Obtain Occupational Analysis

To generate a particular set of performance goals, it is necessary to have a source and an orientation that result from occupational or job analysis. Analysis "... is a technique by means of which the essential elements of an occupation, or any part of an occupation or activity, are identified and listed for instructional purposes."[1] Thus, the basis for performance goals "... is determined by a job analysis of what the worker must know and be able to do to be successful in the occupation or task for which he is trained."[2]

The primary source of information for occupational or job analysis is first-hand information from a person doing the job itself. This information may be obtained by observation of the person at work, interviews with workers and their supervisor, questionnaires to workers and employers, and other job-analysis techniques. In addition to primary sources, secondary sources could be employed, such as research reports, manuals, periodicals, textbooks, and many other materials in existence. Once the secondary information is assembled and combined with the primary sources, the context in which the performance goals are to be developed is available. With information from primary and secondary sources and a plan for generating performance goals, it is realistically possible for the program developer to produce performance-goal statements that describe both job entry and intermediate educational objectives.

Illustrative Development of a Performance Goal Model

To assist the reader, a complete model for the writing of a set of performance goals appears on page 8 (Conditions) and pages 30–31 (Directions and Criteria). The content of these pages will be systematically developed on pages 9–28. Other complete models appear in Part II of this manual.

Each of the eight steps in preparing the model will be illustrated by an example, which is the result of a task analysis. In order to demonstrate the development of the model to all vocational and technical educators, an example will be used common to nearly all occupations—that of adapting to frequent change. Let us assume that analysis reveals that a worker is frequently confronted with new machines or equipment and consequently has the ability to adapt to these frequent changes. In many cases the machines or equipment are improved models that require different methods of operation. In other cases, completely new equipment and machines are introduced that radically change the entire procedure.

Step Two: List Conditions Using Analysis Information

Chart 3, page 7, is a flowchart of the procedure for developing the conditions in the model. As can be seen, the conditions, based on an existing occupational or job analysis, are developed from eight substeps. The first substep is to list givens, which may be an object, a piece of information, a person, or an intangible situation. Other substeps include listing sources of the givens, purposes, methods to

(Continued on page 9)

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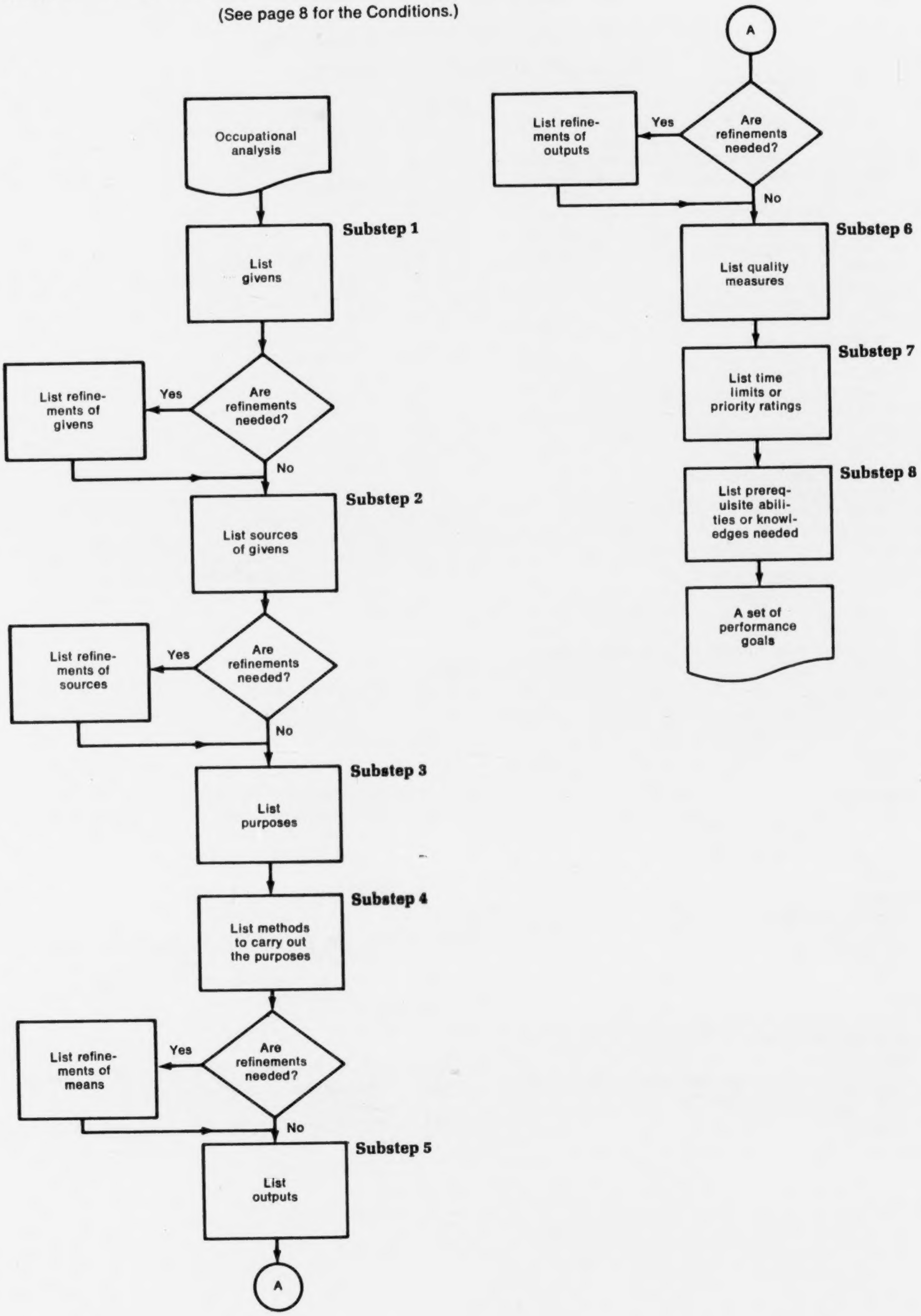
[1] Fryklund, Verne C., *Analysis Technique for Instructors*, Bruce Publishing Company, Milwaukee, 1965, p. 1.

[2] Larson, Milton E., *Review and Synthesis of Research: Analysis for Curriculum Development in Vocational Education*, The Center for Vocational and Technical Education, Ohio State University, Columbus, October, 1969, p. 4.

CHART 3. Procedure for Developing the Conditions of Performance-Goal Instruments

(See page 8 for the Conditions.)


Occupational analysis
Substep 1
List givens
Are refinements needed?
Yes
List refinements of givens
No
Substep 2
List sources of givens
Are refinements needed?
Yes
List refinements of sources
No
Substep 3
List purposes
Substep 4
List methods to carry out the purposes
Are refinements needed?
Yes
List refinements of means
No
Substep 5
List outputs
A
A
Are refinements needed?
Yes
List refinements of outputs
No
Substep 6
List quality measures
Substep 7
List time limits or priority ratings
Substep 8
List prerequisite abilities or knowledges needed
A set of performance goals

The Model

Ability to Adjust to Future Changes in Equipment and Machines

CONDITIONS

GIVEN

( ) **1.** Agriculture: sono-scope for measuring fat covering on live swine, sheep, and cattle
( ) **2.** Business: word-processing system utilizing magnetic tape typewriter and voice-recording terminals
( ) **3.** Distribution: cash register system with change return, perpetual inventory control, automatic order processing, and security-control components
( ) **4.** Health: equipment to monitor condition of patient in an intensive care unit
( ) **5.** Home economics: electronic oven for home preparation of food
( ) **6.** Trade and industry: computer diagnosis or semi-automated trouble-shooting instruments for discovering malfunctions of motor vehicles
( ) **7.** Technical: cybernetic systems and feedback controls using solid state components
( ) **8.** Other

Degree of Automation

( ) **9.** Completely automated
( ) **10.** Partially automated
( ) **11.** Not automated
( ) **12.** Other

Supplemental Supplies and Materials

( ) **13.** Punched cards to be used in the operation
( ) **14.** Magnetic tape to be used in the operation
( ) **15.** Paper tape to be used in the operation
( ) **16.** No supplemental supplies and materials needed
( ) **17.** Other

SOURCE OF GIVEN

( ) **18.** Business or industry (away from school)
( ) **19.** Sales representative's showroom
( ) **20.** Rental
( ) **21.** Other

Time Availability

( ) **22.** Opportunity to learn a specific application
( ) **23.** Opportunity for limited practice
( ) **24.** Observation of operation
( ) **25.** Other

Time Constraint

( ) **26.** Only after school
( ) **27.** Weekends
( ) **28.** No constraints
( ) **29.** Other

PURPOSES

( ) **30.** Gaining skill and knowledge of operation
( ) **31.** Discovering similarities and differences in operation
( ) **32.** Discovering advantages and disadvantages of new machines or equipment
( ) **33.** Learning terminology
( ) **34.** Other

METHODS

( ) **35.** Observation of demonstration
( ) **36.** Self-instruction
( ) **37.** Formal instruction
( ) **38.** Coaching
( ) **39.** Other

Safety Measures

( ) **40.** Legal age restrictions
( ) **41.** Safety clothes and gear required
( ) **42.** Recommended safety features
( ) **43.** Other

Assistance Available

( ) **44.** Ample printed references
( ) **45.** Experienced worker to help teacher
( ) **46.** Experienced worker only
( ) **47.** Teacher only
( ) **48.** None
( ) **49.** Other

OUTPUTS (OUTCOMES)

( ) **50.** Ability to demonstrate machine or equipment
( ) **51.** Ability to state advantages and disadvantages
( ) **52.** Desire for additional knowledge and information
( ) **53.** Ability to recall terminology
( ) **54.** None
( ) **55.** Other

Degree

( ) **56.** Similar to an expert
( ) **57.** Similar to a novice
( ) **58.** Similar to a beginner
( ) **59.** Other

QUALITY MEASURES TO USE

( ) **60.** Meets stipulated criteria on a printed checklist
( ) **61.** Conforms to specified error tolerance level
( ) **62.** Is judged by competent judges to meet quality measure
( ) **63.** Other

TIME LIMITS OR PRIORITY RATINGS TO USE

( ) **64.** Specified time in minutes, hours, days: ________
( ) **65.** Priority rating, with time limit unspecified: ______
( ) **66.** Completion date specified: __________
( ) **67.** Other

PREREQUISITE ABILITIES TO LEARN THE TASK

( ) **68.** Prerequisite instruction (specific units or courses)
( ) **69.** No special background or experience required
( ) **70.** Other

carry out purposes, outputs, quality measures, time limits or priority ratings, and prerequisite abilities or knowledge to embark on a particular performance goal.

The eight primary substeps for developing the conditions contained in a performance goal instrument are presented next. They are intended to be illustrative. They apply in different ways to different performances.

Substep 1. List the Givens. When a performance is described, the performer may be given a physical object, recorded information, a person, or an intangible. Examples of various givens are shown below.

GIVENS

- Physical Objects
  - Equipment or machinery
  - Clothing
  - Trees
  - Land
  - Parts for machinery or equipment
  - Building materials
  - Soil
  - Animals
  - Other
- Recorded Information
  - Documents
  - Vouchers
  - Microfilm
  - Books
  - Records
  - Reports
  - Tapes
  - Other
- People
  - Customer
  - Child
  - Employee
  - Supervisor
  - Other
- Intangibles
  - Problems
  - Situations
  - Requests
  - Other

As shown in the model on page 8, some givens are as follows:

GIVEN

1. Agriculture: sono-scope for measuring the fat covering on live swine, sheep, and cattle.
   sheep, and cattle
   and voice-recording terminals
2. Business: word-processing system utilizing magnetic tape typewriter and voice-recording terminals
3. Distribution: cash register system with change-return, perpetual inventory control, automatic order processing, and security-control components
4. Health: equipment to monitor condition of patient in an intensive care unit
5. Home economics: electronic oven for home preparation of food
6. Trade and industry: computer diagnosis or semi-automated trouble-shooting instruments for discovering malfunctions of motor vehicles
7. Technical: cybernetic systems and feedback controls using solid state components
8. Other

Normally the givens of equipment and machines involve only a certain kind in one service field, but to enable vocational educators in all services to follow the procedure described, applicable equipment from seven services is used in this illustration.

Clarifications or refinements of the given describe it sufficiently, so that the performer can recognize or select it if necessary. Clarification might include physical measurements—such as length or degree of completeness, such as how much has been done or left undone as shown below.

CLARIFICATIONS OR REFINEMENTS OF THE GIVEN

Length, height, density, slope, moisture level, etc.
Arrangement, form, working condition, degree of completeness
Equipment or furniture features (type, attachments, degree of complexity)
Number, quantity

- Supplemental supplies and materials
- Special instructions
- Age (children, people, etc.)
- Physical, mental, social, financial condition (people, children)
- Attitudes and incentive
- State of being (people, children)
- Space available
- Degree of automation
- Other

As shown in the model on page 8, a refinement could be the degree of automation.

Automation, as used here, is to refer to the degree to which the equipment is free from manual manipulation by the operator. For example, if a person were required to reproduce a deck of IBM cards, he would go to the reproducer, insert the cards and the control panel, set the proper switches, and push the start button. The remainder of the operation, with the exception of removing the cards and the control panel, would be automated.

DEGREE OF AUTOMATION

9. Completely automated (Only preliminary controls and settings are necessary prior to starting actual operation of the machine or equipment.)
10. Partially automated (In addition to preliminary settings and controls, some settings or modifications are made during the actual operation of the machine or equipment.)
11. Not automated (All activities during the actual operation of the machine or equipment are instigated manually.)
12. Other

Another refinement of the given in the model on page 8 is:

SUPPLEMENTAL SUPPLIES AND MATERIALS

13. Punched cards to be used in the operation
14. Magnetic tape to be used in the operation
15. Paper tape to be used in the operation
16. No supplemental supplies and materials needed
17. Other

Substep 2. List Sources of Givens. In order to carry out a performance, it is often necessary either to obtain the given or to understand where it came from. If the given is information, will it be received by a television screen, telephone, or mail? Other possible sources result from activities, physical factors, and people as shown below.

SOURCES OF GIVENS

- Audio or Visual Display
  - Cathode ray (television screen)
  - Records
  - Films
  - Charts
  - Graphs
  - Blueprints
  - Voice
  - Other
- Recorded Information
  - Appointments
  - Books
  - Directories
  - Periodicals
  - Data-processing input or output
  - Reports
  - Mail
  - Registrations
  - Building standards or specifications
  - Other
- Activities
  - Demonstrations
  - Dictations
  - Interviews
  - Diagnosis
  - Analysis
  - Other
- Physical Factors
  - Market area
  - Weather
  - Forests
  - A type of material
  - Land
  - Other
- **People**
  - Managers
  - Supervisors
  - Homemaker
  - Sales person
  - Customer
  - Children
  - Employees
  - Engineers
  - Technicians
  - Owners
  - Other

As shown in the model on page 8, some sources are as follows:

SOURCE OF GIVEN

18. Business or industry (away from school)
19. Sales representative showroom
20. Rental
21. Other

When the source of the given must be further defined, sometimes the type of container to hold the given must be specified or a piece of accompanying equipment or software must be mentioned, such as a table or magnetic tape. Other clarifications of the source of the given are shown below.

CLARIFICATION OR REFINEMENTS OF THE SOURCE OF THE GIVEN

Type of container
Accompanied by (something)
Special instructions
Accessibility
Constraints
Transport
Time availability
Time constraint
Other

In the model on page 8, some refinements of the source are as follows.

When the source of the given is outside the school, it is necessary to consider the time availability. A student may be given the opportunity to learn how the new equipment can be applied, or he may only be permitted to observe it while it is in operation.

TIME AVAILABILITY

22. Opportunity to learn a specific application
23. Opportunity for limited practice
24. Observation of operation
25. Other

The student may also be restricted by the amount of time he can spend on adapting to new machines or equipment. For example, he may be limited to time during weekends or time after school; therefore, further refinements include:

TIME CONSTRAINT

26. Only after school
27. Weekends
28. No constraints
29. Other

Substep 3. List Purposes. Purposes are introduced by verbs such as *create, ready, operate, manage,* or *interact* as shown by the categories below.

PURPOSES (TO DO SOMETHING)

- Creating or Producing
  - Documents
  - Materials
  - Parts of something
  - Crop
  - Other
- Readying (something)
  - Documents
  - Parts of something
  - People
  - Animals
  - Other
- Interacting
  - Eliciting
  - Cooperating
  - Explaining
  - Other
- Operating (carrying out an operation)
  - Repairing
  - Selecting
  - Collecting
  - Screening
  - Storing
  - Confirming
- Operating (*cont.*)
  - Adjusting
  - Recording
  - Arranging
  - Testing
  - Gaining (something)
  - Discovering (something)
  - Learning (something)
- Managing
  - Classifying
  - Recommending
  - Analyzing
  - Other

As shown in the model on page 8, some purposes are given below. Since learning is a natural part of all jobs in today's world, note that gaining (something), discovering (something), and learning (something) are listed under Operating (*carrying out an operation*).

PURPOSES

30. Gaining skill and knowledge of operation
31. Discovering similarities and differences in operation
32. Discovering advantages and disadvantages of new machines or equipment
33. Learning terminology
34. Other

Substep 4. List Methods to Carry Out Purposes. Performances are carried out by following a sequence of nonbranching or branching steps. These steps may involve the use of equipment, the process of interacting with people, the tryout of a sequence of steps as in troubleshooting. The user of the new equipment may use the method of reading a manual of instruction, watching a demonstration, or talking with an expert user. Some examples of methods follow.

METHODS TO CARRY OUT PURPOSES

- Follow a branching or nonbranching sequence of instructions in or from a/an
  - Almanac
  - Blueprint
  - Catalog
  - Directive
  - Drawing
  - Handbook
  - Manual
  - Oral presentation
  - Report
  - Sketch
  - Other
- Imitate or follow a branching or nonbranching sequence from a/an
  - Demonstration
  - Observation
  - On-the-job training program
  - Self-instruction program
  - Formal instructions
  - Coaching
  - Other
- Employ machinery or equipment
  - Chainsaw
  - Cooking equipment
  - Dog-clipping tools
  - Farm machinery
- Employ machinery or equipment (*cont.*)
  - Furniture
  - Lathe
  - Troubleshooting equipment and machines
  - Tune-up equipment
  - Typewriter
  - Other
- Interaction and coping
  - Questioning
  - Testing and trying out
  - Interviewing
  - Fitting
  - Other

As shown in the model on page 8, some methods used to carry out the purposes are as follows:

METHODS

35. Observation of demonstration
36. Self-instruction
37. Formal instruction
38. Coaching
39. Other

In some cases it is necessary to present refinements of the methods, particularly with reference to safety measures or assistance available or time allowed. All of these may greatly affect the method. Examples of refinements are shown below.

CLARIFICATIONS OR REFINEMENTS OF THE METHODS

Type of controls
Supplies
Special machines
Equipment
Tools
Special instructions
Special operations
Safety measures
Restraints
Specifications
Time and other constraints
Assistance available
Other

As shown in the model on page 8, a very important refinement could be safety measures. Safety measures should always be considered with respect to method of learning to operate and use machines and equipment.

SAFETY MEASURES

40. Legal age restrictions
41. Safety clothes and gear required
42. Recommended safety features
43. Other

An additional refinement that could apply to the model on page 8 would be the assistance available to the person in performing the method.

ASSISTANCE AVAILABLE

44. Ample printed references
45. Experienced worker to help teacher
46. Experienced worker only
47. Teacher only
48. None
49. Other

Substep 5. List Outputs. Outputs describe what the result of the performance will be, such as a record, product, service, action, or change in attitude as shown below.

OUTPUTS

Recorded Information
  Records
  Reports
  Transparencies
  Tapes and/or film
  Vouchers
  Books
  Charts
  Graphs
  Data-processing input or output
  Documents
  Ledgers
  Inventories
  Complete file

Recorded Information (*cont.*)
  Case history
  Other

Action
  Demonstration
  Dictation
  Interview
  Relating, statements, recall
  Other

Product or Service
  Crops
  Foods
  Merchandise

Product or Service (*cont.*)
  Sterilized items
  Dental work
  Plowed field
  Readied bed
  Firewood, logs, lumber
  Other

Behavioral Changes
  Perceptions
  Aspirations
  Attitudes (desire, cooperativeness, dependability, etc.)
  Other

As shown in the model on page 8, some examples of outputs follow. The student may be required to demonstrate his ability to operate the new machine, to recall terminology associated with the new machine, or to state advantages and disadvantages of new machines and equipment. The outputs are as follows:

OUTPUTS (OUTCOMES)

50. Ability to demonstrate machine or equipment
51. Ability to state advantages and disadvantages
52. Desire for additional knowledge and information
53. Ability to recall terminology
54. None
55. Other

The output often requires a number of refinements, such as quantity required, degree of creativity expected, and form required as shown below.

CLARIFICATIONS OR REFINEMENTS OF OUTPUT

Quantity
Type
Length
Form
Degree
Specifications
Creativity
Other

If the output is an ability, it is necessary to describe the degree of the ability. The ability may be described as that of an expert, novice, or beginner. For the model on page 8, the refinement of the output is shown below.

DEGREE

56. Similar to an expert
57. Similar to a novice
58. Similar to a beginner
59. Other

Substep 6. List Quality Measures. Three quality measures are illustrated, which include the use of a checklist, the application of an error tolerance level, or judgment of competent evaluators as shown below. The latter measure is often subjective and expensive of time and effort. Objective quality measures are preferred.

QUALITY MEASURES TO USE

60. Meets stipulated criteria on printed checklist
61. Conforms to specified error tolerance level
62. Is judged by competent judges to meet quality measure
63. Other

The examples shown above are used as they stand in the model on page 8.

Substep 7. List Time Limits or Priority Ratings. It is probable that every performance must be completed in, or by, a certain time. A priority rating is given, such as first, second, or in a free moment of time.

TIME LIMITS OR PRIORITY RATINGS TO USE

64. Specified time in minutes, hours, days
65. Priority rating, with time limit unspecified
66. Completion date specified
67. Other

The examples shown above are used as they stand in the model on page 8.

Substep 8. List Prerequisite Abilities or Knowledges Needed to Learn the Task. Certain prerequisites are required so that a student can learn to carry out a performance. These are completion of units of instruction, a record of previous experience, a demonstrated competency, as shown below.

PREREQUISITE ABILITIES

Completion of Prerequisite Courses or Units
  Educational institution
  In-service courses
  Other

Confidence or Familiarity by Observation

Reading, Mathematics, English, and Other Skills

On-the-job Experience
or Training
  Previously performed same
    task or operation or
    performance on same
    type equipment
  Previously performed similar
    task or operation or
    performance on
    similar equipment
  Other

Specified Competencies or
Achievement of Prior
Specified Performance Goals

No Background or Experience

Other

In the model on page 8, the following prerequisite abilities are listed.

PREREQUISITE ABILITIES TO LEARN THE TASK

68. Prerequisite instruction (specific units or courses)
69. No special background or experience required
70. Other

Occupational or job analysis may reveal the need for other categories of conditions that were not illustrated. If this need exists, new classes of conditions must be added. The entire set of conditions for the performance goal instrument appears on page 8 in the model.

Step Three: Write Individual Performance Goals

The next step is the writing of individual performance goals that will eventually become assignments for the students. The procedure to follow is to select one given, one of each of the refinements of the given if applicable, one source of the given, and so on. Then, combine these into a meaningful performance statement.

Refer to the entire set of conditions on page 8. Observe below how a condition from each category has been selected.

CATEGORY	ITEM
GIVEN	**5.** Electronic oven
Degree of Automation	**9.** Completely automated
Supplemental Supplies & Materials	**17.** Other (Roast)
SOURCE OF GIVEN	**19.** Sales representative's showroom
Time Availability	**24.** Observation of operation
Time Constraint	**26.** Only after school
PURPOSES	**31.** Discovering similarities and differences in operation
METHODS	**35.** Observation of demonstration
Safety Measures	**42.** Recommended safety features
Assistance Available	**45.** Experienced worker to help teacher
OUTPUTS	**51.** Ability to state advantages and disadvantages
Degree	**58.** Similar to a beginner
QUALITY MEASURES	**60.** Meets stipulated criteria on a printed checklist
TIME LIMITS OR PRIORITY RATINGS	**64.** Specified time in minutes, hours, days
PREREQUISITE ABILITIES	**68.** Prerequisite instruction (specific units or courses)

After listing the selected conditions, a specific performance goal can be written. The following performance goal was constructed from the previously selected conditions. Note that a definite sequence of conditions is not required in the written performance goal. The codes are inserted in parentheses after the condition in order to call attention to the fact that all conditions were selected from the numbered condition items on the checklist preceding the performance goal. This method is used on all prototypes of performance goals in Part II.

Learning to Operate a New Model Electronic Oven

Given the assignment of learning to operate a completely automated **(9)** electric oven **(5)** located at a sales representative's showroom **(19)**, the student observes a 30-minute **(64)** demonstration **(35)** of cooking a roast **(17)** conducted by the teacher and a sales representative familiar with the oven **(45)**. Learning time is limited to observation of the demonstration **(24)** after school hours on specified dates **(26)**. The student is to discover similarities and differences in the cooking process as compared with an electric oven (i.e., to learn the effects of radio waves on protein) **(31)**. The student is to note the safety features and precautions taken during the demonstration **(42)**. The teacher will record on a printed checklist **(60)** the student's ability to state the advantages and disadvantages **(51)** of cooking by this new method. The degree of this knowledge and understanding should not be expected to exceed that of a beginner **(58)**. The student must have completed the unit on meat preparation prior to observing the demonstration **(68)**.

Study the following two performance goals for operating new kinds of equipment—a sono-scope and a word-processing system.

Learning to Operate a Sono-Scope

(Not available at the school)

Given the assignment of learning to operate a sono-scope **(1)** located at a stockyard at (location) **(18)**, the student is to measure the fat covering on a live swine **(22)**. After being positioned over the animal, the machine provides an automatic reading **(9)**. No supplemental materials or supplies will be needed **(16)**, and the only safety precautions are to insure that the electrical outlet and cord attached to the machine are in safe condition **(43)**. The student is to report to the stockyard on Saturday mornings **(27)** during the period of six Saturdays to receive coaching **(38)** from the person currently operating the machine **(46)**. The purpose of the assignment is to enable the student to acquire the skill and knowledge of the operation **(30)** similar to that exhibited by a novice **(57)** in operating the machine. After completing the assignment, the student is to report the advantages and disadvantages of the machine **(51)** in a manner judged to be satisfactory by his coach **(62)**. This assignment is to be completed by a specified date **(66)**, and the student must have completed the livestock judging course prior to receiving training on the machine **(68)**.

Learning to Operate a Word-Processing System

Given the assignment of adjusting to the work sequences and procedures of a partially automated **(10)** word-processing system **(2)** in a local business firm **(18)**, the student and teacher arrange for instruction **(37)** from a machine-company representative **(46)**. The student must have completed the first year of typing, or he must demonstrate proficiency in typing prior to this instruction **(68)**. The student is to observe the operation of the magnetic tape **(14)**. The time available for learning permits only limited practice **(23)** on the equipment during a period of four hours after school **(29)** arranged with the sales representative. No particular safety measures are stipulated **(43)**. The student will demonstrate **(50)** the equipment at the location to the company representative **(62)** to determine whether he has skill and knowledge **(30)** similar to that of a novice **(57)**. He will have one week to complete the assignment **(64)**.

THE NUMBER OF PERFORMANCE GOALS TO BE PREPARED

If one of each class of conditions is taken in various combinations, it would be possible to write hundreds, even thousands, of individual performance goals or assignments. Conversely, reliance on only a few general objectives would result in a lack of clarity and a failure to communicate enough specifics and instructional intent to permit measurement.

How many individual performance goals should be written at one time? The answer depends upon the level of behavior the student is to acquire. The rule-of-thumb is to write a sufficient number to prepare a unit or module of relevant instruction.

Step Four: Arrange Performance Goals in Order of Prerequisite Abilities

Once a sufficient number of assignments are developed for a unit or module of instruction, the assignments should be sequenced. A variety of considerations may be used in sequencing. The simplest or first assignment would be one requiring no specified background or experience of the student. The objective of the sequence of assignments is to provide for progress toward job or occupational competency. Assignments may therefore be sequenced by (1) the prerequisite behavior required to embark on that performance goal or (2) the difficulty of the methods the student is to use. Some methods may involve only a few simple steps; others may involve a complex set of steps—problem solving and trouble-shooting steps, or extremely complex behavior. Consequently, methods as indicated by Substep 4 on page 12 may be used to arrange assignments from simple to complex learning. It is possible for some teachers to go directly from Step 4 to Step 8 without completing all the details of Steps 5, 6, and 7.

Step Five: Prepare the General Directions (Task Sequence)

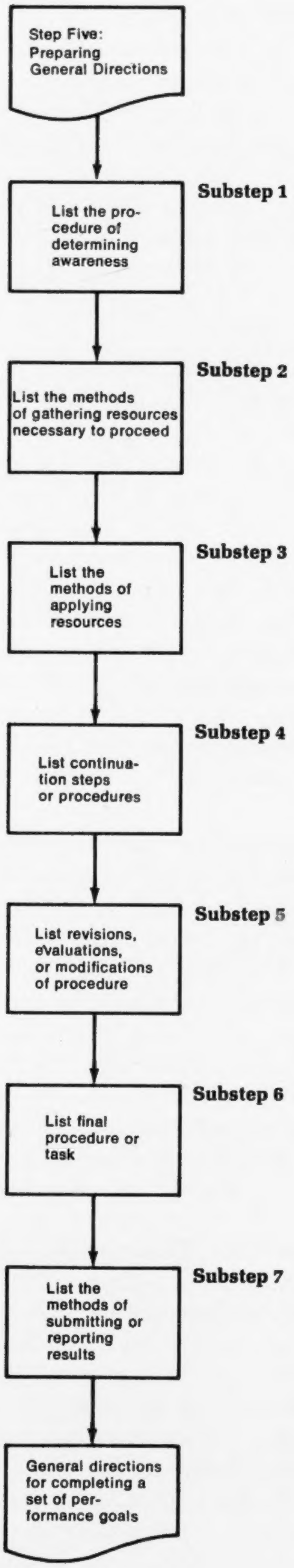
Chart 4, page 18, presents the overall flowchart of the seven substeps needed for developing the general directions for a set of performance goals.

A discussion follows of the seven key substeps in preparing the general directions for completing a set of performance goals. Each substep will be illustrated first as it relates to performance goals in general and secondly as it may relate to the performance goal of adjusting to new equipment.

In an individual performance goal, there usually will be only one direction for each substep. In a set of performance goals, there may be several directions, as will be seen in the following illustration of adjusting to new equipment. The general directions in the model on page 8 and on pages 29–30 are developed in detail beginning here and continuing through page 29.

Substep 1. List the Procedure of Determining Awareness or Acquiring Need. Before carrying out a task or job, the performer must become aware of what is required. How does a student examine the performance to sort out all the conditions to be considered? What must he do or produce? What materials is he to gather? What situation, if any, is he to cope with? The reader may be concerned at this point with the amount of detail that goes into the development of a performance goal. Performance goals at the beginning of a sequence will necessarily be detailed. Eventually, however, the student will be confronted with conditions that are incomplete and ambiguous. Thus, in the first substep of directions, he himself will be required to establish many of the missing conditions. He will be able to do this since he has been carefully prepared.

CHART 4. Procedure for Developing the General Directions for Completion of a Set of Assignments


Step Five: Preparing General Directions
Substep 1
List the procedure of determining awareness
Substep 2
List the methods of gathering resources necessary to proceed
Substep 3
List the methods of applying resources
Substep 4
List continuation steps or procedures
Substep 5
List revisions, evaluations, or modifications of procedure
Substep 6
List final procedure or task
Substep 7
List the methods of submitting or reporting results
General directions for completing a set of performance goals

Two major ways of becoming aware are by interaction with people or the environment. Examples of determining awareness or acquiring need for performance goals in general appear below.

DETERMINING AWARENESS OR ACQUIRING NEED

- Contact with People
  - Establishes rapport with person
  - Greets customer or patient
  - Receives a request
  - Receives instructions, directives, orders, etc.
  - Receives telephone call
  - Other
- Interaction with Environment
  - Becomes aware of an event, such as a sound, light, delivery, etc.
  - Becomes aware of error
  - Determines variations or alternatives
  - Determines effect if proper action is not taken
  - Discovers a difference or variation
  - Notes an opportunity for improvement
  - Visits a concern presently using the equipment or machine
  - Other

A person becomes aware of the need to adjust to new equipment when he is requested and required to use the equipment. The need furthermore increases in importance as he observes an experienced operator (on film or in person), or as he reads sales literature, or as he visits a sales office and listens to the sales representative explain the uses and advantages of the equipment. Examples of determining awareness or acquiring need as related to adjusting to new equipment may be as follows: (See pages 29–30.)

DETERMINING AWARENESS OR ACQUIRING NEED

1. Hears or reads about improved machines or equipment
2. Talks about purported advantages with an operator
3. Visits concern presently using the equipment
4. Receives a request

Substep 2. List Methods of Gathering Necessary Resources. The next key substep is to list the methods of gathering resources needed for the task such as information, materials, or equipment. General examples are as follows:

GATHERING NECESSARY RESOURCES

- Instruction
  - Oral direction
  - Coaching or supervision by fellow employee or supervisor
  - Other

- Recorded Information
  - Books
  - Stipulated reference materials
  - Document containing error
  - Table of information
  - Mail
  - Other

- Arrangements to Obtain Material or Equipment, such as
  - Stationery
  - Table appointments
  - Parts
  - Linen
  - Supplies
  - Soil test kit
  - Merchandise
  - Other

- Oral Information
  - Elicits required information
  - Interviews, questions, etc.
  - Other

As shown in the model on pages 29–30, oral and written resources may be gathered as follows:

METHODS OF GATHERING RESOURCES

1. Reads literature, manuals, and brochures
2. Interviews operators or uses
3. Looks at pictures
4. Obtains resource from manufacturer or other concern
5. Makes arrangements to use equipment at a location other than the school

Substep 3. List the Methods of Applying the Resources. The list may include a series of activities, such as previewing, designing, searching, and readying. General examples are as follows:

APPLYING THE RESOURCES

- Analyzes or Previews
  - Determines whether information is sufficient
  - Discusses with person
  - Appraises equipment or machine
  - Previews present or stipulated procedure
  - Confirms whether materials or data are suitable
  - Confirms responsibilities or procedures
  - Other

- Designs a Plan for
  - Registering information
  - Preliminary charts or graphs or scales
  - Procedure
  - Use of equipment
  - Amount of space available
  - Number of items to be involved
  - Presorting parts or materials
  - Technical details
  - Familiarization with material or procedure
  - Records needed
  - Arrangements
  - Escape route
  - Timing, placement, and strategy of advertisement
  - Other

- Searches, Locates, or Selects
  - Items
  - Methods
  - Information to code
  - Missing data
  - Soil to test
  - Other

- Readies Equipment, Materials, Person, or Animals
  - Converts work station or area for task
  - Prepares equipment for use
  - Overcomes resistance or objections
  - Helps person get ready for task
  - Demonstrates ability in present system
  - Prepares or assembles materials needed
  - Inspects or adjusts
  - Takes product or service to laboratory
  - Shows, informs, and instructs customer
  - Other

As shown in the model on pages 29–30, application of resources may be as follows:

METHODS OF APPLYING RESOURCES

1. Reviews operator's manual
2. Makes arrangements to observe a demonstration
3. Arranges to be coached for a short time by person familiar with machine
4. Observes equipment or machine in operation
5. Devises procedural plans
6. Reviews available material in reference to machine settings or adjustments

Substep 4. List Continuation Steps or Procedures. The list of continuation steps will increase in length as the complexity of the task increases. A variety of general examples of continuation steps are illustrated below.

CONTINUATION STEPS OR PROCEDURES

- Records Information or Data
  - Converts a sample to code
  - Registers the information
  - Designs output
  - Totals account balances
  - Copies, transcribes, or composes
  - Grades, measures, counts, or sorts
  - Completes forms
  - Prepares and writes advertisement
  - Other

- Operates Machines, Equipment, or Tools
  - Performs on the equipment
  - Regulates the operation of the machinery or equipment
  - Clips animal
  - Undercuts, barks, and limbs tree
  - Other

- Compiles, Arranges, or Manipulates
  - Opens incoming mail, removes and sorts contents
  - Systematizes
  - Edits
  - Traces data through system
  - Places table appointments properly
  - Handles instruments
  - Gathers and prepares data or materials
  - Other

- Elicits, Explains, or Determines
  - Makes judgments of what is needed or what to use
  - Seeks related information
  - Determines cost
  - Explains product or service
  - Answers objections or questions
  - Identifies standards of fit
  - Tells or reads stories
  - Circumvents resistance, perseveres, verbalizes to clarify
  - Assigns room or duties
  - Other

- Reacts or Responds
  - Adapts to new system
  - Assesses capabilities and features
  - Compares systems
  - Predicts utility
  - Terminates discussion
  - Assists with treatment
  - Other

The person adjusting to new equipment could pursue continuation steps such as analyzing his need to adjust, familiarizing himself with the machine, attempting to operate it. Specific examples may be as follows: (See pages 29–30.)

CONTINUATION STEPS OR PROCEDURES

1. Makes preliminary machine adjustments or settings
2. Attempts trial run of machine operation
3. Performs on machine or equipment
4. Activates the plan
5. Observes the demonstration

Substep 5. List Revisions, Evaluations, or Modifications of Procedure. Simple jobs or tasks will require few revisions, evaluations, or modifications of the procedure followed. A simple job may require only proofreading for errors and making appropriate corrections. Complex jobs or tasks may require the development of a proposal, submission of the proposal for review, acceptance of suggestions for modification, and the final preparation of what has been proposed. General examples of revisions, evaluations, or modifications might be as follows:

REVISIONS, EVALUATIONS, OR MODIFICATIONS

- Corrects or Verifies
  - Proofreads and corrects detected errors
  - Submits preliminary information or data for review
  - Other

- Communicates with Person Involved
  - Reads information back to customer for verification
  - Permits person to review recorded information

- Communicates with Person Involved (*cont.*)
  - Identifies client's tastes or wants
  - Interacts with child during completion of chore
  - Other

- Analyzes and Evaluates
  - Recorded information
  - Discussion
  - Effect of error
  - Other

In the case of the adjustment to new equipment, this substep might require the consideration of alternative plans in the event that the procedure for learning to use the machine did not accomplish its purpose. The operator would revise his plan and seek help from another source, such as assistance from an experienced operator. Specific examples may be as follows: (See pages 29–30.)

REVISIONS, EVALUATIONS, OR MODIFICATIONS

1. Discovers the need to ask questions
2. Modifies or revises procedural plan
3. Evaluates preliminary success of operating the machine

Substep 6. List the Final Procedure. The final step in a task frequently involves an activity such as verifying, delivering, or storing something; handing something over or escorting a person to another location; preparing to start another task. General examples are as follows:

FINAL PROCEDURE

- Acknowledges Completion or Demonstrates Competency
  - Declares how he learned to operate or perform
  - Assembles and arranges data
  - Demonstrates performance at task or in system
  - Finishes sorting
  - Verifies total with proof
  - Cleans equipment or area after use
  - Removes finished product
  - Recognizes completion of chore
  - Completes process or procedure
  - Other

- Forwards, Delivers, or Stores Results for Further Action
  - Submits final plan
  - Stores output
  - Stacks or stocks goods
  - Distributes parts or supplies
  - Packages and loads material
  - Escorts person to next station
  - Forwards order to next department
  - Marks up and delivers to media for action
  - Other

- Terminates Contact with Person or Thing
  - Stops reading or story telling
  - Finalizes arrangements for cost and delivery of product
  - Inquires or suggests other or future needs
  - Secures signature
  - Leaves person with feeling of fair consideration and confidence in the firm
  - Other

- Final Recording
  - Codes remainder of information
  - Devises final plan
  - Records accounting information
  - Copies addresses
  - Records all orders on cards
  - Writes order
  - Calculates amount needed
  - Other

In the case of adjusting to new equipment, the final procedure might well be a demonstration to prove the competency to perform. Specific examples might be as follows: (See pages 29–30.)

FINAL PROCEDURE

1. Acknowledges that he has learned to operate the equipment
2. Discusses his knowledge and understanding of the machine or equipment by stating advantages and disadvantages
3. Demonstrates machine operation

Substep 7. List the Methods of Submitting or Reporting Results. Once a task has been completed, it must be submitted, reported, or turned over. For many tasks, the final procedures discussed in the previous substep and this substep are almost identical. For other tasks, the results are reported to someone. General examples follow:

SUBMITTING OR REPORTING RESULTS

Reports Results or Findings
- To supervisor
- By mail to designated addresses
- To person for approval
- Other

In reference to adjusting to new equipment, the feeling of adjustment might well be reported to a supervisor, an employee, or even the vendor. Specific examples might be: (See pages 29–30.)

METHODS OF SUBMITTING OR REPORTING RESULTS

1. Completes and submits required form or written report
2. Presents oral findings to the designated person or group
3. Submits results by means of a demonstration
4. Submits to appropriate person or persons suggestions to help others adjust to new equipment
5. Reports on his feelings toward the assignment

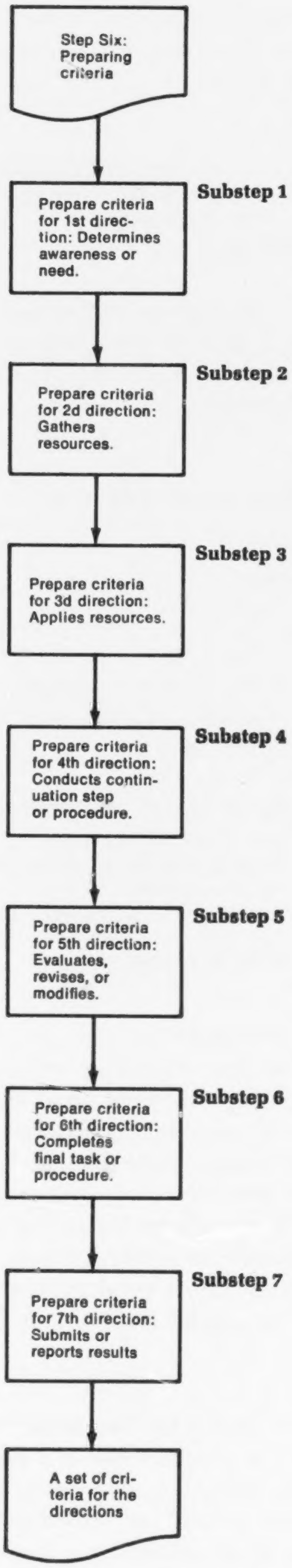
Step Six: Prepare General Criteria

An overall flowchart for developing criteria to accompany the directions (task sequence) is given in Chart 5, page 24. *Criteria* are standards and tests by which behavior is evaluated; they serve as checkpoints to determine whether a direction has been completed and, if not, whether to advance to the next direction. Seven substeps for preparing criteria to correspond with the seven basic directions are presented next. Each substep will be illustrated first as it relates to performance goals in general, and secondly as it may relate to the performance goal of adjusting to new equipment. Normally, several criteria are prepared for each direction.

Refer to the model on pages 8 and 29–30 in order to follow the development of the criteria.

Substep 1. Prepare Criteria for First Basic Direction: Determines Awareness or Need. A basic criterion of awareness of a simple task is "The first step was taken." In other tasks, awareness is evidenced in other ways, such as "Information or instructions were noted," or "Conditions were individually noted or restated." Examples of general criteria are given on page 25, top. Observe that the criteria illustrated are stated as if the activity were completed.

CHART 5. Procedure for Developing Typical Criteria (Measurable Steps)


Step Six: Preparing criteria
Substep 1
Prepare criteria for 1st direction: Determines awareness or need.
Substep 2
Prepare criteria for 2d direction: Gathers resources.
Substep 3
Prepare criteria for 3d direction: Applies resources.
Substep 4
Prepare criteria for 4th direction: Conducts continuation step or procedure.
Substep 5
Prepare criteria for 5th direction: Evaluates, revises, or modifies.
Substep 6
Prepare criteria for 6th direction: Completes final task or procedure.
Substep 7
Prepare criteria for 7th direction: Submits or reports results
A set of criteria for the directions

CRITERIA FOR DETERMINING AWARENESS OR NEED

Information and instructions were noted or recorded.
Conditions were individually noted or restated.
Discussion, conferences, or interviews on the problem were held.
Errors or deficiencies were recognized or discovered.
Equipment, machine, process, or procedure was observed.
Patient was acknowledged with friendly greeting.
Menu was checked to determine number of courses and types of food.
Personnel were interviewed and discussions were held.
Appropriate requisitions were identified and selected.
Desirable attitudes were exhibited.
Other.

As shown in the model on pages 29–30, examples of criteria for one direction in determining awareness or need might be:

DIRECTION	CRITERIA
Hears about improved machines or equipment.	**a.** Film concerning technological changes affecting workers was viewed. **b.** Sales representative's office was visited and features of new equipment or machines were described. **c.** Changes in operation and performance of new machines were noted.

Substep 2. Prepare Criteria for the Second Direction: Gathers Resources. A basic criterion of gathering resources for a simple task is "Working materials were located or procured." Several examples of general criteria are listed below.

CRITERIA FOR GATHERING RESOURCES

Source personnel were observed, interviewed, or questioned.
Records, information, and instructions were obtained from file.
Working materials, supplies, equipment were located or procured.
Reference or source materials were gathered and reviewed.
Table appointments were selected.
Work station was readied.
Other.

As shown in the model on pages 29–30, criteria for one direction of gathering resources are as follows:

DIRECTION	CRITERIA
Seeks resources from manufacturer.	**a.** Operator's manual, job instruction sheets, and other programmed learning materials were obtained and studied. **b.** Company officers were consulted for permission to secure assistance in learning to operate the equipment. **c.** Machines or equipment and supplies to use were located.

Substep 3. Prepare Criteria for Third Direction: Applies Resources. Criteria for determining whether resources have been applied are illustrated from a wide variety of jobs or tasks. Examples of general criteria for applying resources follow:

CRITERIA FOR APPLYING RESOURCES

Initial steps according to standard procedure were taken.
Work place was made ready.
Persons involved were greeted, recognized, or assisted.
Assistance and directions were obtained from supervisor.
Standard plans or procedures were revised or modified.
Dog was cleaned and prepared.

Cooking equipment was preheated.
Necessary ingredients were added and adjustments were made.
Table appointments were assembled and arranged.
Appropriate greeting was made.
Plans or procedures were created, identified, or reviewed.
Benefits of successful performance were pointed out.
Procedure or operation was observed, discussed, or evaluated.
Operating valve to admit steam into chamber was turned on.
Assistance and direction were obtained from source personnel.
Location of cavity was ascertained.
Other.

As shown in the model on pages 29–30, examples of criteria for one direction in applying resources might be as follows:

DIRECTION	CRITERIA
Arranges to be coached for a short time by person familiar with machine.	**a.** Permission for an hour's visit was obtained from sales representative by means of a letter and a follow-up telephone call. **b.** Machine operators were interviewed and questioned; notes regarding machine operation were recorded. **c.** Method of operation was observed.

Substep 4. Prepare Criteria for Fourth Direction: Conducts Continuation Steps or Procedures. Since continuation steps are widely varied for different tasks, the criteria are much varied, as the examples illustrate. Examples of general criteria appear below.

CRITERIA FOR CONDUCTING CONTINUATION STEPS OR PROCEDURES

Steps were taken according to standard procedure.
Trial procedures were attempted.
Ideas and suggestions were elicited or accepted and then applied.
Work of person was overseen.
Information was recorded.
Books or stories were read to children.
Seats were properly placed at table.
Children were observed for signs of loss of attention.
Assistance or direction was obtained from source personnel as necessary.
Child was praised for work well done.
Ideas and suggestions were accepted.
Headlands were plowed around whole field in appropriate direction.
Dentist was assisted in each step.
Bundles were moved away from contact with chamber walls or door of autoclave.
Procedures or operations were performed or learned.
Other.

In reference to the performance goal of adjusting to new equipment, the continuation steps or procedures criteria for one direction might be as follows:

DIRECTION	CRITERIA
Performs on machine or equipment.	**a.** Equipment controls or settings were readied for operation. **b.** Machine operation was practiced. **c.** Assistance was requested and obtained as necessary.

Substep 5. Prepare Criteria for the Fifth Direction: Evaluates, Revises, or Modifies. In simple tasks, a criterion for evaluation is "Material or completed work is examined for correctness or completeness." Examples of other general criteria follow.

CRITERIA FOR EVALUATING, REVISING, OR MODIFYING

Progress was reviewed against a checklist.
Assistance and direction were obtained from source personnel.
Directions and instructions were reviewed and restated as needed.
Plans and procedures were approved or verified.
Plans and procedures were modified or revised.
Each piece was examined visually for something.
Information was compared with original sources.
Information was recorded.
Material was examined for fit, errors, deficiencies, or something.
Other.

As shown in the model on pages 29–30, examples of the criteria for one direction in evaluating, revising, or modifying might be as follows:

DIRECTION	CRITERIA
Evaluates success in operating the machine.	**a.** Any errors of machine operation were discussed with the coach. **b.** Suggestions, comments, and criticisms were noted. **c.** Changes in machine operation were made as a result of consultation with coach. **d.** Additional practice of machine operation was completed.

Substep 6. Prepare Criteria for the Sixth Direction: Completes Final Task or Procedure. In extremely simple tasks, a criterion of completion is "Last regular step was taken," or "The last step was completed in or at the time allowed," or "The task was completed according to the priority rating assigned." Other general criteria appear below.

CRITERIA FOR COMPLETING FINAL PROCEDURE

Performance or procedure was verified, reviewed, or corrected.
Additional source or reference information necessary for completion of assignment was obtained.
Last standard step was taken.
Equipment or work space was cleaned up.
Equipment was turned off.
Patient was escorted to head nurse.
Finished product was stacked or stored.
Additional assistance or direction was obtained from source personnel.
Contents were removed from equipment.
Performance or procedure was verified, reviewed, or corrected.
Agreement to time and cost was obtained from customer.
Performance or procedure steps were repeated, completed, or demonstrated.
New appointment was scheduled.
Performance or procedure was approved or accepted.
Equipment was soaked, cleaned, and rinsed.
Other.

With regard to the model on pages 29–30, examples of the criteria for one direction for completing the task or procedure could be as stated below.

DIRECTION	CRITERIA
Demonstrates machine operation.	**a.** Operation of machine without further assistance from coach was performed. **b.** Acceptance of demonstration was expressed by peers. **c.** Student's familiarity with operation of machine was acknowledged by coach.

Substep 7. Prepare Criteria for the Seventh Direction: Submits or Reports Results. In simple tasks, a criterion of results is "Finished work was examined for completeness." Examples of general criteria are listed below.

CRITERIA FOR SUBMITTING OR REPORTING RESULTS

Finished work was examined for completeness or neatness.
Results were reported or submitted.
Results were audited, verified, or reviewed against a checklist.
Results were approved, accepted, or rejected.
Recommendations were made on the basis of the outcomes.
Improved procedures were discussed or listed.
Problems encountered during assignment were discussed with source personnel and peer group.
Importance of ability, procedure, or item measured was discussed.
Other.

In the case of the model on pages 29–30, an example of the criteria for one direction for submitting or reporting results might be as follows:

DIRECTION	CRITERIA
Suggestions to help others adjust to new equipment are submitted.	a. Problems of adjusting were discussed with teacher and peer group. b. A written report concerning the experience of adjusting to the operation of the equipment that included features of the equipment, differences between the new and old equipment, and advantages of the new equipment was duplicated and distributed to the peer group. c. Better procedures were described or discussed as necessary.

Completion of the seven substeps results in a set of criteria for the general directions. Further comments about criteria follow. Criteria used by educators include pencil-paper tests, performance evaluation by means of check sheets, and attitude scales. Educators will find it helpful to evaluate performance by preparing objective check sheets to examine "what is being done" or "what has been done."

Step Seven: Prepare General Instruction Plan for a Set of Performance Goals

After Step Six has been completed, it is possible to prepare a general instruction plan for the set of performance goals. Essentially a general instruction plan is developed by following the guidelines presented in Steps 2, 3, 5, and 6: conditions of the job or task, a set of performance goals (assignments), directions, and criteria. A complete general instruction plan includes the conditions in the model on page 8 and the directions and criteria on pages 29–30. Other examples of general instruction plans, which were prepared by authorities in vocational education, appear in Part II. Each general plan is based on an analysis of a job or part of a job.

Step Eight: Prepare Specific Instruction Plans for Individual Performance Goals

The general instruction plan illustrated on pages 8 and 29–30 is the source for specific instruction plans. A specific instruction plan for the performance goal on page 16 consists of three parts: the assignment, specific directions, and specific criteria appearing on pages 30–31. A specific instruction plan is similar to a lesson or module of instruction. The specific directions and criteria enable a student to complete a specific performance goal.

NEED FOR SET OF DIRECTIONS

Early performance goals in a set will often contain a complete and detailed set of directions or tasks. Ultimately, of course, less specific directions and criteria will be provided the student because he should begin to develop his own. For example, the procedure "list continuation steps or procedures" includes opportunity for devising alternatives for continuing. The procedure "list revisions, evaluation, or modifications" also provides opportunity for the student to design his own procedure. Thus, in the sequence of assignments, the most elementary ones would not require the student to deal with ambiguous directions and criteria, but as he progresses into the more difficult assignments, the directions would become less precise. The purpose, as previously mentioned, would be to have the student design and develop his own directions (methods and procedures), so that he practices what we label "thinking on his own."

General Instruction Plan for a Set of Performance Goals—Adaptability to Frequent Changes in Equipment & Machines

(See page 8 for the Conditions.)

DIRECTIONS (Task Sequence)	**CRITERIA**
The worker adjusts to change in the following manner:	*Each step is correct in terms of all the following:*
1. Hears about improved machines or equipment.	**a.** Film concerning technological changes affecting workers was viewed. **b.** Sales representative's office was visited and features of new equipment or machines were described. **c.** Changes in operation and performance of new machines were noted.
2. Seeks resources from manufacturer.	**a.** Operator's manual, job instruction sheets, and other programmed learning materials were obtained and studied. **b.** Company officers were consulted for permission to secure assistance in learning to operate the equipment. **c.** Machines or equipment and supplies to use were located.
3. Arranges to be coached for a short time by person familiar with machine.	**a.** Permission for an hour's visit was obtained from sales representative by means of a letter and a follow-up telephone call. **b.** Machine operators were interviewed and questioned; notes regarding machine operation were recorded. **c.** Method of operation was observed.
4. Performs on machine or equipment.	**a.** Equipment controls or settings were readied for operation. **b.** Machine operation was practiced. **c.** Assistance was requested and obtained as necessary.
5. Evaluates success in operating the machine.	**a.** Any errors of machine operation were discussed with the coach. **b.** Suggestions, comments, and criticisms were noted. **c.** Changes in machine operation were made as a result of consultation with coach. **d.** Additional practice of machine operation was completed.
6. Demonstrates machine operation.	**a.** Operation of machine without further assistance from coach was performed. **b.** Acceptance of demonstration was expressed by peers. **c.** Student's familiarity with operation of machine was acknowledged by coach.

7. Suggestions to help others adjust to new equipment are submitted.	**a.** Problems of adjusting were discussed with teacher and peer group. **b.** A written report concerning the experience of adjusting to the operation of the equipment that included features of the equipment, differences between the new and old equipment, and advantages of the new equipment was duplicated and distributed to peer group. **c.** Better procedures were described or discussed as necessary.

Specific Instruction Plan for an Individual Performance Goal

Learning to Operate a New Model of an Electronic Oven

Given the assignment of learning to operate a completely automated (**9**) electric oven (**5**) located at a sales representative's showroom (**19**), the student observes a 30-minute (**64**) demonstration (**35**) of cooking a roast (**17**) conducted by the teacher and a sales representative familiar with the oven (**45**). Learning time is limited to observation of the demonstration (**24**) after school hours on specified dates (**26**). The student is to discover similarities and differences in the cooking process as compared to an electric oven (i.e., to learn the effects of radio waves on protein) (**31**). The student is to note the safety features and precautions taken during the demonstration (**42**). The teacher will record on a printed checklist (**60**) the student's ability to state the advantages and disadvantages (**51**) of cooking by this new method. The degree of this knowledge and understanding should not be expected to exceed that of a beginner (**58**). The student must have completed the unit on meat preparation prior to observing the demonstration (**68**).

DIRECTIONS (Task Sequence)	**CRITERIA**
SUBSTEP 1: (Procedure of determining awareness or acquiring need) Visits a concern presently using an electronic oven.	**a.** Concern using the oven was telephoned for appointment. **b.** Manager of concern was interviewed for purpose of determining proper person to interview. **c.** Advantages of electronic oven over currently used electric ovens were discussed with manager.
SUBSTEP 2: (Methods of gathering resources) Interviews the person using or demonstrating the oven—an oral resource.	**a.** Operator was questioned concerning the benefits he felt were achieved by using the electronic oven. **b.** Desire to observe the oven in operation was expressed.
SUBSTEP 3: (Methods of applying the resources) Makes arrangements to observe a demonstration.	**a.** Permission for an hour's visit was obtained from manager. **b.** Oven manual was obtained and studied.
SUBSTEP 4: (Continuation steps or procedures) Observes the demonstration.	**a.** Oven settings were carefully noted. **b.** Safety features and precautions were carefully observed and noted. **c.** Each step in the demonstration was recorded in sequence.
SUBSTEP 5: (Revisions, evaluations, or modifications) Discovers the need to ask questions.	**a.** Settings and operation of the equipment were discussed. **b.** Additional questions concerning safety features and precautions were asked. **c.** Similarities and differences as compared to the electric oven were discussed. **d.** Reason for lack of browned appearance of meat was discussed.
SUBSTEP 6: (Final procedure or task) Discusses his knowledge and understanding of the machine or equipment.	**a.** Student reported to the operator his knowledge and understanding of the oven in reference to advantages and disadvantages of the oven, similarities and differences as opposed to the electric oven, and safety features and requirements. **b.** Any detected discrepancies were noted by operator and discussed with student.

SUBSTEP 7: (Methods of submitting or reporting results) Presents oral findings to teacher and peer group.	**a.** Advantages and disadvantages were reported. **b.** Differences and similarities of cooking with the electronic and electric ovens were reported. **c.** Importance of safety precautions was reported. **d.** Implications of this new device were discussed with teacher and peers. **e.** Acceptance of report was expressed by teacher and peers.

IMPLEMENTATION

Teachers may take the following course of action:

1. Take existing job analyses or make job analyses of new jobs or occupations. (Use primary and secondary sources for the analyses.)
2. Write performance goals (or assignments) based on the procedure described in this report.
3. Organize the resulting assignments into modules, units, or courses, and incorporate in a new or existing curriculum.
4. Arrange the individual assignments in order of prerequisites (or enabling behavior) required of the student.
5. Assess the prerequisite abilities or behaviors of a student who is preparing for entry into the initial job under consideration.
6. Select and give to the student an assignment that meets his prerequisite abilities.
7. Develop intermediate assignments for students with limited backgrounds when no such assignments are available. Possibly a sequence of intermediate assignments will be necessary to point the student toward his objective of a job-entry type of assignment, however easy and simple it may be.
8. Continue to give assignments to the student according to his needs and prerequisite behaviors.
9. Work individually as necessary with the student in achieving a particular assignment.
10. Review with the student the criteria or guidelines for an assignment when he completes it.
11. Determine whether the student actually possesses the necessary prerequisite behaviors if he has had difficulty completing an assignment. If he does possess these behaviors, have him repeat Steps 6–10. If he does not possess them, give him a more basic assignment or reassess his needs, interests, and abilities for another selection of assignments leading to another kind of entry job.
12. Make a record of the assignments achieved.
13. Provide for periodic review and refreshment of knowledges, skills, and attitudes.
14. Repeat Steps 6–13 for additional assignments.
15. Grade students for administrative purposes on the number of assignments satisfactorily completed or give credit for completion of module, unit, or course when the student finishes the prescribed assignments.

Part II—
Prototypes of Performance Goals

Performance Goals for Agricultural Education

Vocational educators in agriculture have traditionally found the work of the agricultural industry to be the most viable source from which to determine vocational curricula. In farm and ranch production and management, the jobs performed and the decisions made by the farmer and rancher have been the basis for determining what to teach the present and prospective farmer and rancher.

This approach has resulted in an analytical system of selection of subject matter and learning experience. Course content and student experiences have been determined by an analysis of what the successful farmer or rancher actually does as he operates his business.

In recent years large segments of the agricultural industry have moved off the farm and ranch. Many of the more than 500 different jobs in agriculture are now carried out somewhere other than on the farm or ranch. Occupational education in agriculture is now called upon to serve this vast complex of agricultural jobs. To accomplish this task, many different occupations must be examined. An analytical approach to ascertain curricular content is vital to the determination of viable and relevant learning experiences that prepare for employment in this agricultural occupations complex.

The instructional strategy that appears to hold the most promise in meeting this challenge can best be described as criterion referenced instruction. This approach to curriculum and instruction focuses primarily on the degree to which the learner can perform specific or predetermined criterion behaviors. These behaviors or performance goals are determined by an analysis of the occupation or field of employment for which the learner is being prepared. The criterion behaviors of the learner are described by instructional objectives stated in performance or behavioral terms.

There are three vital components in this approach. First, it is essential to identify the desired terminal behavior of the student. Secondly, the conditions under which the terminal behavior is to occur should be identified and stated. And thirdly, the criteria of acceptable performance should be stated. These three components are essentials of meaningfully stated instructional objectives. The terminal behavior should be measurable and observable. This component is rather constant for the particular skill or task to be learned; however, the conditions are the givens of a particular teaching-learning situation and are variable. Also the criteria of acceptable performance vary with the particular student and situation.

Prototype performance goals present a vast array of alternatives for these two instructional variables. They provide the curriculum planner or teacher with unlimited sets of alternative performance objectives. By so doing, they provide for application of a more specific teaching prescription to fill the particular training need. These aids to instruction can be a vital input to occupational education for a complex agricultural industry.

CONDITIONS

Plowing with a Farm Tractor

PROTOTYPE

Given level (5) unbroken sod (1) with heavy growing material (8) and moderately dry (15) soil, the student is to completely plow a 3-acre (29) field, including headlands (25). The field is surrounded by ditches (32), is rectangular (37) in shape with a gentle slope (42), and has medium loam soil (47) with submerged stones (51). The student is to use a one-way (58) mounted moldboard (55) plow with two (65) bottoms and a rolling coulter (68). The field is to be suitable for seedbed (79) preparation to a standard judged satisfactory by the instructor (82). The job is to be completed at a rate of 1½ acres per hour (86). The student will have had previous plowing experience (91), but under different conditions.

GIVEN

( ) **1.** Unbroken sod
( ) **2.** Stubble
( ) **3.** Broken ground
( ) **4.** Other

With This Topography

( ) **5.** Level
( ) **6.** Rough
( ) **7.** Other

With This Surface Material

( ) **8.** Heavy growing material
( ) **9.** Light growing material
( ) **10.** Heavy loose material
( ) **11.** Light loose material
( ) **12.** With no extraneous material
( ) **13.** Other

And with the Following Moisture Level

( ) **14.** Very dry
( ) **15.** Moderately dry
( ) **16.** Medium
( ) **17.** Moderately wet
( ) **18.** Very wet
( ) **19.** Other

PURPOSE

( ) **20.** Open a land
( ) **21.** Close a furrow
( ) **22.** Complete a land
( ) **23.** Plow a number of rows in an already opened land
( ) **24.** Completely plow a field less headlands
( ) **25.** Completely plow a field including headlands
( ) **26.** Completely plow headlands in a plowed field
( ) **27.** Other

SOURCES

( ) **28.** Field of less than or equal to two acres
( ) **29.** Field of from 2–5 acres
( ) **30.** Field over five acres
( ) **31.** Other

The Field Being of This Type

( ) **32.** Surrounded by a ditch
( ) **33.** Surrounded by a fence
( ) **34.** Surrounded by a ditch and fence
( ) **35.** Marked with markers
( ) **36.** Other

Of This Shape

( ) **37.** Regular square or rectangular
( ) **38.** Triangular
( ) **39.** Irregular
( ) **40.** Other

With This Slope

( ) **41.** Flat
( ) **42.** Gentle slope
( ) **43.** Steep slope
( ) **44.** Other

And This Soil Type

( ) **45.** Light sandy soil
( ) **46.** Light loam
( ) **47.** Medium loam
( ) **48.** Clay loam
( ) **49.** Heavy clay soil
( ) **50.** Other

And with These Submerged Obstructions

( ) **51.** Stony
( ) **52.** Stumpy
( ) **53.** Unobstructed
( ) **54.** Other

METHOD USING THIS TYPE OF PLOW

( ) **55.** Moldboard
( ) **56.** Disc
( ) **57.** Other

Attached to the Tractor in This Fashion

( ) **58.** One-way mounted
( ) **59.** One-way semi-mounted
( ) **60.** One-way trailed
( ) **61.** Two-way mounted
( ) **62.** Two-way trailed
( ) **63.** Other

With This Number of Bottoms

( ) **64.** One
( ) **65.** Two
( ) **66.** Three
( ) **67.** Other

Using the Following Supplementary Equipment

( ) **68.** Rolling coulter
( ) **69.** Fin coulter
( ) **70.** Deflecting coulter
( ) **71.** Moldboard jointer
( ) **72.** Disc jointer
( ) **73.** One covering wire
( ) **74.** Two covering wires
( ) **75.** Week hooks
( ) **76.** Moldboard extension
( ) **77.** Combination of 2 or more of above
( ) **78.** Other

OUTPUT

( ) **79.** Field suitable for seedbed preparation
( ) **80.** Field suitable for winter fallowing
( ) **81.** Other

QUALITY

( ) **82.** Satisfactory as judged by instructor
( ) **83.** Satisfactory as judged by outside expert
( ) **84.** Other

TIME THE JOB IS TO BE COMPLETED AT A RATE OF

( ) **85.** Less than one acre per hour
( ) **86.** 1–2 acres per hour
( ) **87.** More than 2 acres per hour
( ) **88.** Other

ENABLING BEHAVIOR

( ) **89.** Having previously plowed under similar conditions
( ) **90.** Having previously assisted and observed others plowing in similar conditions
( ) **91.** Having previously plowed but under different conditions
( ) **92.** Other

DIRECTIONS (Task Sequence)	**CRITERIA**
The operator executes the assignment in the following steps:	*Each step is correct in terms of all the following:*
1. Inspects plow.	**a.** Share was of correct type for assigned task. Was properly pointed. **b.** Moldboard was polished. **c.** Bearings were greased.
2. Hitches plow.	**a.** Correct order of hitching points. **b.** Pins and/or bolts were checked.
3. Adjusts setting.	**a.** Plow was level and aligned behind tractor. **b.** Bottoms were set to give furrows of uniform width.
4. Lays out field.	**a.** Headland of adequate and uniform width was measured and marked around field. **b.** Shallow furrow was plowed all around field at the marks. **c.** Lands of appropriate width were measured and marked.
5. Opens land.	**a.** Front bottom plowed a shallow furrow and other(s) normal depth on first two times around field.
6. Sets plow.	**a.** Plow was leveled and aligned. **b.** Landside exerted slight pressure on furrow wall. **c.** All furrows were of equal breadth and depth.
7. Plows.	**a.** Appropriate speed for prevailing conditions was maintained. **b.** Furrow slices were uniform and properly inverted. **c.** Plow setting was checked periodically. **d.** Uniform width of unplowed section was checked and maintained.
8. Finishes land.	**a.** Next to last time around field, plow was set at a shallow depth. **b.** Last time around field (completing neighboring land) plow was set for regular depth. **c.** Last furrow was of uniform full width.
9. Plows headlands.	**a.** Headlands were plowed around whole field in appropriate direction.

PROTOTYPE

A student is given the problem of determining the amount of nitrogen (14), phosphate, and potash (disregarding micronutrients) (18) needed to produce a 100-bushel (29) corn (26) crop, to be produced on gently rolling (38) 20-acre upland (33) field with normal (43) drainage, using a soil auger (47) and a Sudbury Soil Test (50) kit. He is to calculate the amounts of ammonium sulphate (57), ordinary superphosphate (63), and sulphate of potash (67) needed to achieve this purpose.

The task is to be performed without supervision (73) in one hour (78) by a student who has previously done a similar task several times (80).

CONDITIONS Calculating Fertilizer Needs

GIVEN: THE PROBLEM OF DETERMINING THE AMOUNT OF EACH OF THE FOLLOWING PLANT NUTRIENTS NEEDED

- ( ) **1.** Calcium
- ( ) **2.** Nitrogen
- ( ) **3.** Phosphate
- ( ) **4.** Potash
- ( ) **5.** Calcium and nitrogen
- ( ) **6.** Calcium and phosphate
- ( ) **7.** Calcium and potash
- ( ) **8.** Nitrogen and phosphate
- ( ) **9.** Nitrogen and potash
- ( ) **10.** Phosphate and potash
- ( ) **11.** Calcium, nitrogen, and phosphate
- ( ) **12.** Calcium, nitrogen, and potash
- ( ) **13.** Calcium, phosphate, and potash
- ( ) **14.** Nitrogen, phosphate, and potash
- ( ) **15.** Calcium, nitrogen, phosphate, and potash
- ( ) **16.** Other

And (the Following Are Considered as Limitations or Refinements to the Given)

- ( ) **17.** Determining amount of micronutrients
- ( ) **18.** Disregarding micronutrients
- ( ) **19.** Other

PURPOSE: TO PRODUCE THE FOLLOWING CROP

- ( ) **20.** Permanent pasture
- ( ) **21.** Fruits
- ( ) **22.** Rotated crops
- ( ) **23.** Long-time meadow
- ( ) **24.** Tobacco
- ( ) **25.** Vegetables
- ( ) **26.** Other

Giving This Yield

- ( ) **27.** Average for the area and soil
- ( ) **28.** Above average for the area and soil
- ( ) **29.** Specified amount
- ( ) **30.** Other

SOURCE: THE CROP IS TO BE PRODUCED ON THIS TYPE OF LAND

- ( ) **31.** Bottom land
- ( ) **32.** Bench (terrace)
- ( ) **33.** Upland
- ( ) **34.** Under glass (greenhouse)
- ( ) **35.** Other

With This Slope

- ( ) **36.** Depression
- ( ) **37.** Flat
- ( ) **38.** Gently rolling
- ( ) **39.** Steep
- ( ) **40.** Other

And This Type of Drainage

- ( ) **41.** Sluggish
- ( ) **42.** Imperfect
- ( ) **43.** Normal
- ( ) **44.** Excessive
- ( ) **45.** Other

METHOD: THE STUDENT IS TO USE THE FOLLOWING SAMPLING EQUIPMENT

- ( ) **46.** Sampling tube
- ( ) **47.** Soil auger
- ( ) **48.** Spade
- ( ) **49.** Other

AND THE FOLLOWING SOIL TEST EQUIPMENT

- ( ) **50.** Sudbury Soil Test kit
- ( ) **51.** Simplex Soil Test kit
- ( ) **52.** Other

OUTPUT: HE IS TO CALCULATE THE AMOUNTS OF EACH OF THESE FERTILIZERS REQUIRED

Calcium Available in This Form

- ( ) **53.** Oxide of lime
- ( ) **54.** Hydroxide of lime
- ( ) **55.** Carbonate of lime
- ( ) **56.** Other

Nitrogen Available in This Form

- ( ) **57.** Ammonium sulphate
- ( ) **58.** Ammonium nitrate
- ( ) **59.** Urea
- ( ) **60.** Anhydrous ammonia
- ( ) **61.** Other

Phosphate Available in This Form

- ( ) **62.** Concentrated superphosphate
- ( ) **63.** Ordinary superphosphate
- ( ) **64.** Ammonium phosphate
- ( ) **65.** Other

Potash Available in This Form

- ( ) **66.** Mariate of potash
- ( ) **67.** Sulphate of potash
- ( ) **68.** Other

These Complete Fertilizers Available

- ( ) **69.** 5–10–10
- ( ) **70.** 10–10–10
- ( ) **71.** 12–12–12
- ( ) **72.** Other

QUALITY: THE TASK IS TO BE COMPLETED WITH

- ( ) **73.** Little or no supervision
- ( ) **74.** With constant supervision
- ( ) **75.** With assistance
- ( ) **76.** Other

TIME: THE SAMPLING, TESTING, CALCULATING, AND RECOMMENDATIONS ARE TO BE COMPLETED IN

- ( ) **77.** 30 minutes
- ( ) **78.** 60 minutes
- ( ) **79.** Other

EXPERIENCE: THE STUDENT WILL HAVE PREVIOUSLY

- ( ) **80.** Performed a similar task one or two times previously
- ( ) **81.** Performed a similar task several times previously
- ( ) **82.** Observed a similar task being performed previously
- ( ) **83.** Never performed or observed such a task
- ( ) **84.** Other

DIRECTIONS (Task Sequence)	**CRITERIA**
The person calculating performs the assignment in the following steps:	*Each step is correct in terms of all the following:*
1. Selects soil kit and materials.	a. Checked supply and condition of chemicals and materials.
2. Obtains a composite soil sample for testing.	a. 10 or 12 samples were taken so as to assure a true composite sample.
3. Analysis of samples is made.	a. Instructions for testing were followed accurately. b. Equipment and chemicals were kept in neat order.
4. From soil test data and conditions observed judgment is made of actual plant food (nutrient) needed.	a. Conditions were observed with accuracy. b. Nutrient requirement was calculated accurately.
5. Selects fertilizer (nutrients) to be applied.	a. Selection was appropriate according to tests made. b. Fertilizer selected was available in the area.
6. Calculates amount of the nutrients needed.	a. Quantities were accurate according to test results. b. Previous crop history was considered.

PROTOTYPE

Given large (9) hardwood (1) pole timber (4) with an average merchantable height of 24 feet (13) in a natural forest (18) with a basal area density of 120 square feet (24) per acre and a 30 percent (30) slope, the student is required to remove 25 (38) percent of the basal area. He is to use a 3.3 cubic inch (46), direct drive (41) chainsaw with a 16-inch (50) bar. He is to produce a standard cord (61) of 4 feet (55) of pulpwood with little or no supervision (64) and working at a steady pace (69). He should perform this task after having previously cut pulpwood for a few days (72).

CONDITIONS Felling and Bucking with a Chainsaw

GIVEN

( ) **1.** Hardwood timber
( ) **2.** Softwood timber
( ) **3.** Other

Of the Following Type

( ) **4.** Pole timber
( ) **5.** Saw timber
( ) **6.** Other

Of This Size

( ) **7.** Small (3″–6″ pole)
( ) **8.** Small (12″–16″ saw)
( ) **9.** Large (6″–10″ pole)
( ) **10.** Large (16″ or more saw)

Of This Merchantable Length

( ) **11.** 8 feet
( ) **12.** 16 feet
( ) **13.** 24 feet
( ) **14.** 32 feet
( ) **15.** 40 feet
( ) **16.** 48 feet
( ) **17.** Other

SOURCE (LOCATION)

( ) **18.** In a natural stand
( ) **19.** In a reforested stand
( ) **20.** Other

With a Stand Density (Basal Area) of

( ) **21.** B. A. 60 sq. ft. per acre
( ) **22.** B. A. 80 sq. ft. per acre
( ) **23.** B. A. 100 sq. ft. per acre
( ) **24.** B. A. 120 sq. ft. per acre
( ) **25.** B. A. 140 sq. ft. per acre
( ) **26.** B. A. 160 sq. ft. per acre
( ) **27.** B. A. 180 sq. ft. per acre
( ) **28.** Other

On the Following Slope

( ) **29.** 0–15 percent
( ) **30.** 16–30 percent
( ) **31.** 31–45 percent
( ) **32.** 46–60 percent
( ) **33.** 61–75 percent
( ) **34.** Other

PURPOSE

( ) **35.** Clear cutting—100 percent of the B. A.
( ) **36.** Removal of 50 percent of the B. A.
( ) **37.** Removal of 33 percent of the B. A.
( ) **38.** Removal of 25 percent of the B. A.
( ) **39.** Removal of 20 percent of the B. A.
( ) **40.** Other

METHOD USING THE FOLLOWING TYPE OF CHAINSAW

( ) **41.** Direct drive
( ) **42.** Gear drive
( ) **43.** Electric
( ) **44.** Other

Of the Following Displacement

( ) **45.** 2–3 cubic inches
( ) **46.** 3.1–4 cubic inches
( ) **47.** 4.1–5 cubic inches
( ) **48.** 5.1–6 cubic inches
( ) **49.** Other

With the Following Length of Bar

( ) **50.** 16 inches
( ) **51.** 18 inches
( ) **52.** 20 inches
( ) **53.** 24 inches

OUTPUT

( ) **54.** 18-inch firewood (unsplit)
( ) **55.** 4-ft. pulpwood
( ) **56.** 8-ft. pulpwood
( ) **57.** Saw logs—8 ft. to 16 ft. maximum volume possible
( ) **58.** Saw logs—8 ft. to 16 ft. maximum value possible
( ) **59.** Other

In the Following Quantity Units

( ) **60.** One short cord
( ) **61.** One standard cord
( ) **62.** 1000 board feet
( ) **63.** Other

QUALITY

( ) **64.** Completed with little or no supervision
( ) **65.** Completed with constant supervision
( ) **66.** Completed with assistance from supervisor
( ) **67.** Other

TIME OR RATE OF WORKING

( ) **68.** As fast as possible to produce the desired quantity
( ) **69.** At a steady 8-hour working pace
( ) **70.** Other

ENABLING BEHAVIOR (PREVIOUS EXPERIENCE)

( ) **71.** Task never done before
( ) **72.** New task done a few times before
( ) **73.** Task done many times before
( ) **74.** Task done frequently or constantly
( ) **75.** Other

DIRECTIONS (Task Sequence)	CRITERIA
The task is carried out in the following steps:	*Each step is correct in terms of all the following:*
1. "Sizes up" the tree to be felled.	**a.** Looked for "widow makers" (dead tops). **b.** Used plumb to determine lean of tree.
2. Clears area around base of tree.	**a.** Provided firm footing to operate from. **b.** Removed brush within reach of saw.
3. Locates escape route.	**a.** Prepared escape route in proper direction. **b.** Cleared path if necessary.
4. Starts saw.	**a.** Held saw firmly on the ground. **b.** Started saw with a minimum of lost motion and time.
5. Undercuts the tree.	**a.** Proper angle. **b.** Cut located well. **c.** Minimum of waste.
6. Bark cuts the tree.	**a.** Proper height on tree. **b.** Wood held in proper places to direct fall of tree. **c.** Safety precautions observed.
7. Limbing.	**a.** Carried out in logical efficient manner. **b.** Limbs cut close.
8. Bucking.	**a.** Lay of log "sized up" to determine safe approach. **b.** Products cut precisely to length. **c.** Proper sequence of cuts made to avoid splitting or slabbing. **d.** Saw was not caught in bind. **e.** Saw was not abused by hitting dirt, etc.

PROTOTYPE

A partsman is given a broken (13) steel part (1) with all pieces present but with the serial number obliterated (17). The part is unfamiliar (20) to him. An exact replacement is available (23) on order. The partsman is to elicit information concerning the part by personal interview (47) with the customer (28) who is seeking a replacement part. The customer is well known to the partsman (33). The customer knows the make, model, and age (41) of the machine to which the part belongs but does not know the serial number (45). The partsman uses parts books (50) to obtain needed information. He is to order a replacement part (58) using the list price plus an additional handling charge (60) for special orders. The task is to be completed without supervision (65) in approximately 15 minutes (71) by a partsman who has performed a similar task once or twice before (75).

CONDITIONS Eliciting Information from a Customer

GIVEN
( ) **1.** A steel part
( ) **2.** A cast iron part
( ) **3.** A copper part
( ) **4.** An aluminum part
( ) **5.** An alloy metal part
( ) **6.** A plastic part
( ) **7.** A rubber part
( ) **8.** A wooden part
( ) **9.** A concrete part
( ) **10.** Other

In the Following Condition
( ) **11.** Whole (intact)
( ) **12.** Whole but worn
( ) **13.** Broken—all pieces present
( ) **14.** Broken—some pieces missing
( ) **15.** Other

With the Serial Number
( ) **16.** Readable
( ) **17.** Obliterated
( ) **18.** Other

With the Following Knowledge of the Part
( ) **19.** Part is familiar to partsman
( ) **20.** Part is unfamiliar to partsman
( ) **21.** Other

With the Following Availability of the Part
( ) **22.** Replacement part is in stock
( ) **23.** Replacement part available on order
( ) **24.** Replacement not available but substitute part available
( ) **25.** Replacement available on special order from manufacturer
( ) **26.** Replacement is not available
( ) **27.** Other

PURPOSE: THE PARTSMAN
( ) **28.** Elicits information from the customer
( ) **29.** Elicits information from someone indicated by customer
( ) **30.** Elicits information from colleague
( ) **31.** Elicits information from colleague and customer
( ) **32.** Other

SOURCE OF GIVEN
( ) **33.** Part is brought in by customer well known to partsman
( ) **34.** Part is brought in by customer slightly known by partsman
( ) **35.** Part is brought in by customer unknown by partsman
( ) **36.** Other

The Customer
( ) **37.** Knows make of machine to which part belongs
( ) **38.** Knows model and make of machine
( ) **39.** Knows age of machine
( ) **40.** Knows age and make of machine
( ) **41.** Knows make, model, and age
( ) **42.** None of these
( ) **43.** Other

The Customer Also
( ) **44.** Knows the serial number of the part
( ) **45.** Does not know the serial number of the part
( ) **46.** Other

METHOD: INFORMATION IS ELICITED
( ) **47.** By personal interview
( ) **48.** By telephone
( ) **49.** Other

And by Using
( ) **50.** Parts books
( ) **51.** Customer file
( ) **52.** Operations manual
( ) **53.** Parts card file
( ) **54.** Price book
( ) **55.** Master numerical index
( ) **56.** Other

OUTPUT: THE PARTSMAN IS TO
( ) **57.** Sell a replacement part
( ) **58.** Order a replacement part
( ) **59.** Inform customer that part is unavailable
( ) **60.** Other

Using the Following Pricing Method
( ) **61.** List price in price book
( ) **62.** List price plus 10 percent
( ) **63.** Recorded on stock record card
( ) **64.** Other

QUALITY
( ) **65.** Task completed with little or no supervision
( ) **66.** Task completed with constant supervision
( ) **67.** Assisted in completing the task
( ) **68.** Other

TIME: THE TASK IS TO BE COMPLETED IN
( ) **69.** 5 minutes or less
( ) **70.** 6 to 10 minutes
( ) **71.** Over 10 minutes
( ) **72.** Other

ENABLING BEHAVIOR: THE PARTSMAN HAS
( ) **73.** Never observed or performed the task before
( ) **74.** Has observed but never performed
( ) **75.** Has performed similar task once or twice
( ) **76.** Frequently performed similar tasks
( ) **77.** Other

DIRECTIONS (Task Sequence)	**CRITERIA**
The elicitor (partsman) executes the assignment in the following steps:	*Each step is correct in terms of all the following:*
1. Greets customer.	**a.** Used friendly manner. **b.** Used appropriate verbal greeting.
2. Obtains needed information.	**a.** Asked questions to identify part. **b.** Attempt made to determine cause of breakage.
3. Obtains part or explains its unavailability.	**a.** Moved with expedient pace. **b.** Acknowledged fact that customer was waiting.
4. Prepares sales slip.	**a.** Accurately completed. **b.** Neat and readable. **c.** Copy given to customer.
5. Collects payment.	**a.** Customer was thanked. **b.** Payment was made secure.
6. Inquires as to customer's need for other items.	**a.** Mentioned common needs. **b.** Mentioned particular specials or items on sale.
7. Packages and loads part (if appropriate).	**a.** Made offer in willing manner. **b.** Thanked customer and invited him to return.

CONDITIONS Preparing and Clipping a Dog

PROTOTYPE

Given a long-straight-haired (1) dog (collie) that has been hit by a car and has broken bones and flesh wounds (10) and whose coat is matted (16) with tar and sand (18), the animal technologist is to clip the dog so its wounds can be treated (45). The clipping is to be carried out at the animal hospital (29) and a power clipper with a 1-inch (35) coarse roughing blade (39) is to be used. The clip should leave the dog ready for medical treatment (45) as judged by a veterinarian who is present along with the dog's owner (49). The task is to be completed in 15 minutes (52) by an animal technologist who has previously performed a similar task on a healthy dog (57).

GIVEN THE FOLLOWING TYPE OF DOG

( ) **1.** Long-straight-haired (collie, setter, etc.)
( ) **2.** Long-wire-haired (terrier)
( ) **3.** Poodle
( ) **4.** Short-haired (pointers)
( ) **5.** Intermediate length hair and straight (German Shepherd)
( ) **6.** Other

In the Following State of Health

( ) **7.** Healthy
( ) **8.** Injured with broken bones
( ) **9.** Injured with flesh wounds
( ) **10.** Injured with broken bones and flesh wounds
( ) **11.** Ill but with no effects on coat condition
( ) **12.** Other

With the Following Coat Condition

( ) **13.** Clean, straight, and well kept
( ) **14.** Clean but matted
( ) **15.** Dirty, not matted (normal body oil and dirt)
( ) **16.** Dirty, matted, and knotted

Containing the Following Impurities

( ) **17.** Tar
( ) **18.** Tar and adhering impurities
( ) **19.** Blood and fecal material
( ) **20.** Burned hair from fire or chemicals
( ) **21.** Other

PURPOSE

( ) **22.** Scheduled clip
( ) **23.** Sanitary clip (removal of problem hair from around eyes, rectum, etc.)
( ) **24.** Comfort clip—no specific style
( ) **25.** Specified show clip
( ) **26.** Preoperation clip
( ) **27.** Pretreatment of wounds clip
( ) **28.** Other

SOURCE (LOCATION)

( ) **29.** Animal hospital
( ) **30.** Owner's home
( ) **31.** Technologist's home
( ) **32.** Other

METHOD

( ) **33.** Power clipper, large head 4-inch blade
( ) **34.** Power clipper, 2-inch blade
( ) **35.** Power clipper, 1-inch blade
( ) **36.** Hand clipper, 3-inch blade
( ) **37.** Hand clipper, 2-inch blade
( ) **38.** Other

Of the Following Type

( ) **39.** Coarse roughing blade
( ) **40.** Medium shaping blade
( ) **41.** Fine finishing blade
( ) **42.** Other

OUTPUT

( ) **43.** Dog with properly groomed coat
( ) **44.** Dog with coat prepared for show
( ) **45.** Dog with coat ready for medical treatment
( ) **46.** Other

QUALITY

( ) **47.** Completed with owner present
( ) **48.** Completed with veterinarian present
( ) **49.** Completed with owner and veterinarian present
( ) **50.** Completed with no one else present
( ) **51.** Other

TIME

( ) **52.** 15 minutes
( ) **53.** 30 minutes
( ) **54.** 60 minutes
( ) **55.** Other

PREVIOUS EXPERIENCE

( ) **56.** Previously performed task on similar dog
( ) **57.** Previously performed task on healthy dog
( ) **58.** Previously performed task on injured dog
( ) **59.** Previously observed others perform the task
( ) **60.** Learned the task from reading and class instruction
( ) **61.** Other

DIRECTIONS (Task Sequence)	**CRITERIA**
The clipper executes the assignment in the following steps:	*Each step is correct in terms of all the following:*
1. Prepares dog and clipping area.	**a.** Cleaned the dog to provide sanitary conditions. **b.** Cleaned clipping area.
2. Prepares clippers.	**a.** Selected appropriate size and texture of clippers. **b.** Adjusted clippers. **c.** Cleaned clippers.
3. Restrains dog.	**a.** Allowed owner to assist in holding dog, if owner was present. **b.** Used only as much restraint as needed. **c.** Provided all possible safety and comfort for the animal.
4. Clips the animal.	**a.** Removed only that hair which had to be removed. **b.** Moved with reasonable speed and accuracy.
5. Assists D.V.M. with treatment.	**a.** Restrained as needed. **b.** Used appropriate disinfectants. **c.** Followed instructions given by D.V.M.
6. Cleans up clipping area.	**a.** Area was cleaned and disinfected as needed. **b.** Equipment and medication materials were put away.

Performance Goals in Business and Distributive Education

For some time business and office teachers have been concerned with performance goals for their students, particularly in typewriting and shorthand classes. Because of the nature of these classes, goals for learning progress and goals for promotion into the second-year class are imperative. Consequently, all teachers have placed a great deal of emphasis on words per minute in typewriting and in dictation. The use of words per minute during learning is particularly motivating to students, since they can measure their progress day by day or week by week. Other kinds of performance goals should, however, also be established for students.

Performance goals stated in joblike terms, as found in this manual, should be welcomed by business and distributive education teachers. Thus a performance goal in typewriting should clearly state the kinds of knowledges and skills the student must have in order to complete a particular job assignment. These would be as follows: information about the number of pages to be produced; a description of the source of copy, whether or not complete information is provided; the amount of experience the student has had previously with similar projects; an explicit description of the media in which the product is to appear; the number of copies; and the kind of typewriter to be used. The effect of this type of assignment will be that both the teacher and the student will pay close attention to details as they may be found on the job. If the details of the assignment cannot be simulated in the classroom, the student and teacher will at least become aware of them and can plan for some tactics for handling them. In addition, the statement of performance goals in the form shown in this manual will help teachers plan a procedure to teach decision making or thinking, since the use of performance goals enables the teacher to begin with every detail given. Then the teacher may gradually withdraw a number of the so-called givens and allow the student to use his own knowledge in deciding what to do. For example, a performance goal requiring fifty copies of a financial statement might immediately imply to the student that some form of duplicating is necessary. If the duplicating sources available to him are carbon paper, chemical duplicating master, or a stencil duplicating master, the student can make his own decision based on this information. If the teacher supplies no further information, he should be satisfied with fifty copies on the chemical duplicating master since it would most likely be the least expensive in time, effort, and cost. The teacher, however, would need to supply an additional given if a more expensive method of duplicating is to be used. If the fifty copies are to be used in a bulletin to be duplicated in black ink, it should so be stated, so that the student would use a stencil.

Performance goals will have an additional advantage to the business teacher who does follow-up studies of his graduates. Sample performance goals can be given to employed graduates to determine whether or not they perform such assignments or similar ones on their jobs. Additionally, sample performance goals can be used in community surveys and job analyses by a business teacher to determine how to alter and improve instruction.

Hence, this section should be of tremendous benefit to business and distributive education teachers to supplement their current efforts with performance goals. In addition, it gives them a good tool to use in other business subjects.

Handling Incoming Mail

PROTOTYPES

Given the assignment to presort by addressee (3) the incoming first-class (11) mail, the mailroom clerk places into the sorting-rack (47) compartments all the items (21) that are addressed to specific individuals or departments and sets aside all other items for subsequent opening, scanning, and sorting. Since he is only presorting, he is not concerned with enclosures or containers (31).

Given the assignment to distribute (8) into departmental mailboxes the day's accumulation of second-class (12) mail items (31), the departmental receptionist executes the assignment by sorting (7) the pieces by addressee and placing (8) them in the appropriate compartments (21) of the mailbox rack.

Given the assignment to process her employer's mail at ten o'clock each morning, the secretary obtains (1) the accumulated mail from the mailbox room on her floor, carries the mixture of first- (11) and second-class (12) mail to her desk, opens by hand (51) and date stamps (60) each item, uses paper clips to attach enclosures (33) to their transmittal messages, and then places the items in desk folders (62) arranged (8) (as the employer has asked) by order of immediate urgency.

Given a bulky (34) manuscript (11) that arrives simply addressed to the company without any covering letter, the mailroom clerk carefully unwraps (4, 25, 50) it, dates (60) and scans the content, decides the probable person or department to whom the manuscript should be delivered, confirms that decision by conference with his superior and/or by telephone call to the indicated person or department, repackages the manuscript for internal delivery, and sees that it is routed (8) to the tentative addressee.

CONDITIONS

GIVEN THE FOLLOWING ASSIGNMENT(S) IN REGARD TO THE INCOMING MAIL

( ) **1.** Obtaining the mail
( ) **2.** Receiving the mail
( ) **3.** Presorting by addressee
( ) **4.** Opening the mail
( ) **5.** Removing mail contents
( ) **6.** Handling any enclosures
( ) **7.** Sorting the opened mail
( ) **8.** Distributing the mail
( ) **9.** Other

WITH THE INCOMING MAIL CONSISTING OF

( ) **11.** First-class item(s)—letters, cards, etc.; telegrams
( ) **12.** Second-class item(s)—newspaper, magazine, periodical
( ) **13.** Third-class printed item(s)—circulars, advertisements, etc.
( ) **14.** Third-class merchandise—seeds, bulbs, goods under 1 pound
( ) **15.** Fourth-class printed item(s)—catalogs, books, etc.
( ) **16.** Fourth-class merchandise—parcel post 1 pound and over
( ) **17.** Fourth-class other—films, microfilms, theses, etc.
( ) **18.** Interoffice mail, hand-delivered notes and packages
( ) **19.** Other

AND ARRIVING IN THIS KIND OF CONTAINER OR COVER

( ) **21.** Container is of no concern in the assigned task
( ) **22.** No container is involved (postal cards, delivered message)
( ) **23.** Unsealed envelopes (third-class, interoffice, etc.)
( ) **24.** Sealed standard container (wrapper, sleeve, envelope)
( ) **25.** Wrapped package, secured with tape, twine, staples, etc.
( ) **26.** Crate or box for which opener tools are required
( ) **27.** Other

WITH ENCLOSURES A PROBLEM TO THIS EXTENT

( ) **31.** Of no concern in assigned task
( ) **32.** No enclosures included
( ) **33.** One or more simple enclosures, can be attached to message
( ) **34.** One or more bulky items need special handling
( ) **35.** One or more valuable items (cash, coin, stamps, etc.) need special handling
( ) **36.** One or more urgent items (telegram, perishables, etc.) need special handling
( ) **37.** Enclosure indicated but enclosure is not present
( ) **38.** Other

AND WITH THE FOLLOWING MAIL-HANDLING DEVICES AND EQUIPMENT

Conveyances

( ) **41.** Bags, baskets
( ) **42.** Carts, hand trucks
( ) **43.** Chutes, tubes
( ) **44.** Conveyer belt
( ) **45.** Other

Sorting Aids

( ) **46.** Illuminated inspection panel
( ) **47.** Sorting (cubicled) rack
( ) **48.** Work table
( ) **49.** Other

Opening Aids

( ) **50.** Knife, scissors, razor edge
( ) **51.** Letter opener, hand blade
( ) **52.** Letter opener, mechanical
( ) **53.** Staple remover
( ) **54.** Other

Enclosure Handling Aids

( ) **55.** Oversize envelopes, boxes
( ) **56.** Paper clips, rubber bands
( ) **57.** Stapler
( ) **58.** Twine, twine holder, and cutter
( ) **59.** Other

Other Equipment

( ) **60.** Date stamp, hand
( ) **61.** Time/Date stamp, mechanical
( ) **62.** Other

DIRECTIONS (Task Sequence)	**CRITERIA**
The clerk executes the assignment in these steps:	*Each step is taken at the expected efficiency rate, and each step is correct in terms of the following:*
1. Obtains the incoming mail.	**a.** Mail was obtained from the incoming source (post office, mailroom, area mailbox, mail messenger, etc.) on a regular schedule that included followup in case of schedule interruption or nonfulfillment.
	b. Mail requiring postal action (receipt, postage due, etc.) was given the required attention.
	c. Adjustment was made automatically and systematically for any malfunction or change in the mail schedule.
2. Presorts the incoming mail.	**a.** Mail labeled "Confidential," "Personal," etc., was routed to addressee without being opened.
	b. Mail addressed to specific individuals or departments was routed to addressee without being opened.
	c. Mail addressed as "Rush," "Urgent," etc., was removed from other items and processed immediately.
	d. Mail addressed generally (not to specific individuals or departments) was set aside for opening.
3. Opens the incoming mail.	**a.** Mail items not already routed to other addressees were opened with the aid of hand or mechanical tools suitable for the purpose.
4. Removes and scans contents of the incoming mail.	**a.** Contents of each package, wrapper, and envelope were removed from the container.
	b. Contents were unfolded, unrolled, etc., to lie flat, for scanning and subsequent internal routing.
	c. Enclosures were checked for, found, and attached to the message; if enclosures were indicated but not included, a written record was so noted.
	d. Contents were time- and/or date-stamped in accordance with company policy.
5. Sorts the incoming mail.	**a.** Items were scanned to determine process requirement.
	b. If item was to be routed to more than one department, the priority was decided and/or photocopies made for one of the departments (if doing so was company policy and if photocopy equipment was available).
	c. If item must be wholly or partly repackaged for the internal distribution, this action was taken.
	d. Items were sorted into bins, baskets, racks, etc., as appropriate, preparatory for internal distribution.
6. Distributes the incoming mail.	**a.** Items were cleared from sorting racks, et al., and batched for efficient internal delivery.
	b. Mail was delivered to each of the various units for receiving mail, according to company routine.
	c. If receipts, payments, etc., were required, these requirements were accommodated according to routine.

Typewriting

PROTOTYPES

Given a letter (2) of average length (23) by shorthand dictation (32), with all details (53) given except the address, and with the letter being on a familiar (64) topic; typed on a letterhead (77) with three carbon copies, to be made with a snapout carbon pack (83) on a manual standard (96) Royal typewriter, the typist executes the assignment acceptably within (—) minutes.

Given a monthly (64) departmental report (12) of four pages (28) in revised, typed (33) draft, with all details complete and organized (51), the typist executes four duplicating (73) stencils (to send to a duplicating department) on an electric standard (93) typewriter acceptably within (—) minutes.

Given a handwritten (32) draft of a 1-page (24) table of contents (5) for a price list, with all details provided (51), a typist who has done this task two or three times previously (62) executes on plain paper (75) an original copy (to send to a printer) and one carbon copy (84) on an electric standard (93) typewriter acceptably within (—) minutes.

CONDITIONS

GIVEN THE FOLLOWING TYPING ASSIGNMENT

( ) **1.** Correspondence, interoffice memo
( ) **2.** Correspondence, letter
( ) **3.** Correspondence, telegram
( ) **4.** Correspondence, other
( ) **5.** Display page
( ) **6.** Financial statement
( ) **7.** Form, accounting
( ) **8.** Form, billing
( ) **9.** Form, legal
( ) **10.** Form, payroll
( ) **11.** Form, other
( ) **12.** Manuscript, business report
( ) **13.** Manuscript, formal academic
( ) **14.** Manuscript, legal document
( ) **15.** Manuscript, other
( ) **16.** Table
( ) **17.** Other

OF THE FOLLOWING LENGTH

( ) **21.** ¼ page or postal card
( ) **22.** ½ page or short letter
( ) **23.** ¾ page or average letter
( ) **24.** Full page or long 1-page letter
( ) **25.** Full page plus ⅓ runover page
( ) **26.** Full page plus ⅔ runover page
( ) **27.** Full 2 pages
( ) **28.** More than 2 pages
( ) **29.** Other

DRAWN FROM THE FOLLOWING SOURCE

( ) **31.** Copy, facsimile (for retyping)
( ) **32.** Copy, handwritten
( ) **33.** Copy, typed and revised
( ) **34.** Dictation, to typist at machine
( ) **35.** Dictation, general directive
( ) **36.** Dictation, via recorder
( ) **37.** Dictation, via shorthand
( ) **38.** Original compilation (as, abstracting data for a table)
( ) **39.** Original composition (as, writing a reservation letter)
( ) **40.** Other

WITH THIS DEGREE OF DATA COMPLETENESS

( ) **51.** All details given and organized
( ) **52.** All details given, not organized
( ) **53.** Most details given, few to get
( ) **54.** Some details given, much to get
( ) **55.** No details; general directive
( ) **56.** Other

AND THIS LEVEL OF FAMILIARITY

( ) **61.** New task, never done before
( ) **62.** New task, done few times before
( ) **63.** Task done many times before
( ) **64.** Done frequently, constantly
( ) **65.** Other

TO BE EXECUTED ON THIS MEDIUM

( ) **71.** Duplicating master, chemical
( ) **72.** Duplicating master, litho
( ) **73.** Duplicating master, stencil
( ) **74.** Duplicating master, other
( ) **75.** Plain paper
( ) **76.** Stationery, duplicated form
( ) **77.** Stationery, letterhead
( ) **78.** Stationery, printed form
( ) **79.** Transparency, for projection
( ) **80.** Other

WITH THIS MANY COPIES

( ) **81.** Original copies
( ) **82.** Photocopies
( ) **83.** Carbon copies (snapout)
( ) **84.** Carbon copies (singles)
( ) **85.** Duplicated copies

ON THIS MAKE AND MODEL OF TYPEWRITER

( ) **91.** Electric portable
( ) **92.** Electric midsize
( ) **93.** Electric standard
( ) **94.** Electric proportional
( ) **95.** Manual portable
( ) **96.** Manual standard
( ) **97.** Other

DIRECTIONS (Task Sequence)	CRITERIA
The typist executes the assignment in these steps:	*Each step is correct in terms of all the following:*
1. Selects stationery.	**a.** Stationery (form, letterhead, etc.) was appropriate.
2. Assembles stationery pack and feeds it into the typewriter.	**a.** Sufficient papers and carbons were selected. **b.** They were interleafed correctly and squared up. **c.** They were inserted correctly, without wrinkling.
3. Checks all technical details.	**a.** Names, addresses, places, etc., were verified. **b.** Dates, amounts, totals, percents, etc., were verified. **c.** Arrangement for typing was planned; plan was verified.
4. Converts the work station for the task.	**a.** Machine (margins, tabs, spacing, etc.) was adjusted. **b.** Copy source was positioned for convenience and/or efficiency in executing the assignment. **c.** Pen, ruler, eraser, correction fluid, blade, etc., were positioned for convenience and/or efficiency.
5. Copies, transcribes, or composes assignment to point where typist must stop to proofread his work.	**a.** Stroking was even, giving evenly dark printing. **b.** Stroking was continuous, at a sustained rate. **c.** Task was interrupted at proofreading point (such as closing, totals, etc.), which is point near end from which typist can turn back for corrections.
6. Proofreads what has been typed; corrects errors, if any.	**a.** Material was checked verbatim by reading for meaning. **b.** Numerals and symbols were checked doubly. **c.** Questionable names, dates, etc., were reverified. **d.** All errors were corrected, to office's standard.
7. Copies, transcribes, or composes rest of the page of work.	**a.** Page was concluded with appropriate bottom margin. **b.** Bottom-of-page display lines (folio, signature, etc.) were displayed according to office policy.
8. Proofreads rest of page; corrects errors, if any.	**a.** As in Step 6 preceding.
9. Sorts stationery pack and copies addresses on media used for distributing the typed work.	**a.** Carbons were extracted, then saved or discarded according to office policy; they are out of the way. **b.** Annotations (bcc's, check marks) were added. **c.** Envelopes, labels, or other media were produced in correct arrangement.
	TOTAL TIME FROM STEP 1 THROUGH STEP 9, when typing was completed, was ____________ MINUTES.
10. Submits assignment for signature or approval, if so required, then distributes the copies.	THE ASSIGNMENT WAS APPROVED. **a.** Copies were distributed according to office policy (i.e., airmailed, registered, etc.; delivered by hand, out-boxed, mailed, etc., as firm expected).

Editing

PROTOTYPES

Editing one's own writing. **Having composed a 1-page job application (17) letter (1) at the typewriter (20), the writer is to examine the typescript carefully and (a) modify (30–32) the content, organization, format, style, and tone in any way that will better serve his objectives, and (b) correct any technical errors (in spelling (39–50), grammar, punctuation, etc.), according to the reference works (35) that serve the writer as his standard in such matters. Because this is an especially important letter, the writer will take as much time (58) as he needs to ensure perfection (54) in the finished letter. If the letter must be retyped because of editorial changes, the writer will examine the new version to confirm that the letter meets the established objectives and standards in all respects.**

Editing in conjunction with proofreading. **Given a 38-page typewritten (20) business (17) report (6) that is to be proofread (i.e., checked word for word against the original copy), and given a style manual (31), a dictionary (30), and the company's own procedures manual, a clerk-typist is asked in addition to look for and mark any errors in spelling (39), punctuation (40), capitalization, grammar (41), and format (35) that passed undetected on the original copy. The task requires standard care (52) and is to be performed within a reasonable time (55).**

CONDITIONS

GIVEN THE FOLLOWING MATERIAL TO BE EDITED

( ) **1.** Correspondence, letter
( ) **2.** Correspondence, memorandum
( ) **3.** Manuscript, article
( ) **4.** Manuscript, book
( ) **5.** Report, academic
( ) **6.** Report, business
( ) **7.** Report, technical
( ) **8.** Legal document
( ) **9.** Advertisement or promotional copy
( ) **10.** Tabular matter
( ) **11.** Charts, graphs, etc.
( ) **12.** Diagrams, blueprints, flowcharts
( ) **13.** Drawings, photographs, etc.
( ) **14.** Film
( ) **15.** Sound recording
( ) **16.** Other

OF THE FOLLOWING LENGTH

( ) **17.** Specified
( ) **18.** Unspecified

IN THE FOLLOWING FORM

( ) **19.** Handwriting
( ) **20.** Typewriting
( ) **21.** Print
( ) **22.** Shorthand outlines
( ) **23.** Symbolic language
( ) **24.** Graphic form
( ) **25.** A recording
( ) **26.** Other

TO BE MADE TO MEET THE FOLLOWING OBJECTIVES

( ) **27.** Specified
( ) **28.** Implied
( ) **29.** Unspecified

TO BE MADE TO CONFORM TO THE FOLLOWING STANDARDS (AS EXPRESSED IN AUTHORITATIVE REFERENCE WORKS)

( ) **30.** A spelling reference (dictionary, word list, style sheet)
( ) **31.** A manual on mechanics of style (punctuation, capitalization, etc.)
( ) **32.** A reference on grammar, syntax, word usage, and idiom
( ) **33.** Almanacs, handbooks, encyclopedias (for facts and technical data)
( ) **34.** A subject-matter reference (for matters of content, terminology, methodology, point of view)
( ) **35.** A reference on procedures and format

TO BE MADE TO CONFORM TO SPECIFICATIONS ESTABLISHED FOR THIS PARTICULAR ASSIGNMENT

( ) **36.** Length (specified)
( ) **37.** Format (as indicated in special layouts, samples, etc.)
( ) **38.** Other

WITH THIS DEGREE OF LATITUDE

( ) **39.** Correct the copy for spelling
( ) **40.** Correct the copy for punctuation, capitalization, etc.
( ) **41.** Correct the copy for grammar, syntax, and sentence structure
( ) **42.** Correct the copy for word usage and idiom
( ) **43.** Correct the copy for intelligent paragraphing
( ) **44.** Correct the copy for factual accuracy
( ) **45.** Correct the copy for coherence
( ) **46.** Revise for greater clarity, smoother flow, better control of tone (but do not change organization or meaning)
( ) **47.** Revise for more logical or more effective organization (but do not change the meaning)
( ) **48.** Revise so that meaning conforms to a particular point of view, policy or objective
( ) **49.** Revise so that material fits a particular length
( ) **50.** Revise so that material fits a particular format

WITH THIS EXPECTED LEVEL OF QUALITY

( ) **51.** Do what you can on a one-time read-through; hit the high spots only; fast-and-dirty
( ) **52.** Standard performance customarily given in this company to this kind of task
( ) **53.** Higher quality than usual
( ) **54.** Perfection

AND WITH THIS ALLOWANCE OF TIME

( ) **55.** Reasonable but unspecified
( ) **56.** Rush but unspecified
( ) **57.** Specified
( ) **58.** Unlimited

DIRECTIONS (Task Sequence)	CRITERIA
The editor executes the assignment in these steps:	*Each step is done correctly in terms of the following:*
1. Confirms that material is in a form suitable for editing.	a. The material was surveyed to confirm that it was in the proper medium; if necessary, the material was translated into the proper medium. b. The material was surveyed to confirm that all principal components were present; any missing elements were noted.
2. Confirms editorial responsibilities and procedures.	a. The material was surveyed for editorial needs and problems. b. Editorial responsibilities and procedures (as expressed by the latitudes, the expected quality of performance, and other stipulated conditions) were reviewed in light of editorial needs and problems; these responsibilities and procedures were confirmed if adequate, or modified if not. c. The authoritative reference works specified in the assignment were obtained and made conveniently available.
3. If appropriate, edits the material for matters of content.	a. The material was examined for coherence of meaning, accuracy of facts, adequacy of coverage, validity of method, balance and proportion in treatment; modifications were made as necessary to ensure conformity to the objectives and standards. b. The material was evaluated in light of appropriate reference works and in light of the stipulated point of view, policy, or objective to which the finished product must conform; modifications were made as necessary.
4. If appropriate, edits the material for matters of organization.	a. The material was examined to verify that the components were arranged in a logical and/or effective sequence. Modifications were made as necessary. b. Headings and other devices that identify the pattern of organization were carefully examined and confirmed as appropriate or modified as necessary.
5. If appropriate, edits the material for format, length, and other technical characteristics.	a. The material was examined in light of the desired format and modified as necessary. b. If length and other physical aspects of the final product had been established, the material was examined in light of these specifications and modified as necessary.
6. If appropriate, edits the material for style and tone.	a. The material was examined to confirm that the meaning was expressed clearly and precisely, that the wording flowed smoothly and read easily, and that the tone was appropriate to the occasion. Modifications were made as necessary.
7. If appropriate, edits the material for matters of grammar, idiom, spelling, and mechanics of style.	a. The material was examined to confirm that each sentence was structurally complete, grammatically correct, idiomatically sound, and properly punctuated. Modifications were made as necessary. b. The material was examined to confirm that in matters of spelling, capitalization, hyphenation, number expression, etc., the style employed was correct and consistent throughout. Modifications were made as necessary.
8. Transmits the material to the appropriate person for further action.	a. Edited material was submitted to the appropriate person for resolution of problems or queries and, if necessary, for reworking of the material. b. Edited material was submitted to appropriate person for approval: all objective aspects of the editing conformed to the established standards and specifications; all subjective aspects of the editing satisfied the person who was to approve the work.

CONDITIONS

Compiling

PROTOTYPES

Short Mailing List. **Given a familiar request to prepare an alphabetic (19) index-card (30) list of the names and addresses (14) of school dentists in Ohio communities of 50,000 or more population, the compiler checks the state dental association directory (52), finishing a 217-card (38) index in much less than the half day that had been estimated (71) for the assignment, due to the fact that he had done this many times before (76).**

Itinerary. **Given the task of developing a day-by-day (20) itinerary (12) of flights and motels for a two-week trip, within an hour (72) a transportation clerk will have penned on a printed form (32) a feasible schedule that he builds from data in the *Official Airline Guide* (67) and the *Hotel & Motel Red Book* (52).**

GIVEN THE FOLLOWING COMPILING ASSIGNMENT

( ) **1.** Abstract
( ) **2.** Appendix
( ) **3.** Bibliography
( ) **4.** Brief
( ) **5.** Data, anecdotal
( ) **6.** Data, statistical
( ) **7.** Data, other
( ) **8.** Digest, summary, or overview
( ) **9.** Graphic(s), charts, graphs
( ) **10.** Index
( ) **11.** Inventory
( ) **12.** Itinerary
( ) **13.** List of events or incidents
( ) **14.** List of names and/or addresses
( ) **15.** Outline
( ) **16.** Schedule
( ) **17.** Other

TO BE ORGANIZED IN THIS MANNER

( ) **19.** Alphabetic order
( ) **20.** Chronological order
( ) **21.** Count, quantities
( ) **22.** Geographic order
( ) **23.** Numeric order
( ) **24.** Random order
( ) **25.** Rank, of
( ) **26.** Subject order
( ) **27.** Other

TO BE REPORTED IN THE FORM OF

( ) **30.** Cards, index
( ) **31.** Cards, punched
( ) **32.** Forms, with insertions
( ) **33.** Graphics
( ) **34.** Manuscript
( ) **35.** Recording, dictated
( ) **36.** Other

WITH A PRODUCT OF THIS LENGTH

Number:

( ) **38.** Cards, aproximately
( ) **39.** Items, approximately
( ) **40.** Pages, approximately
( ) **41.** Visuals, approximately
( ) **42.** Other

THE DATA TO BE DRAWN FROM

( ) **44.** Atlases
( ) **45.** Books
( ) **46.** Bulletins
( ) **47.** Calendars
( ) **48.** Cards
( ) **49.** Catalogues
( ) **50.** Corres.
( ) **51.** Dictionaries
( ) **52.** Directories
( ) **53.** Handbooks
( ) **54.** Indexes
( ) **55.** Interviews
( ) **56.** Maps, etc.
( ) **57.** Microfiches
( ) **58.** Microfilms
( ) **59.** Pamphlets
( ) **60.** Pictures
( ) **61.** Records
( ) **62.** Ref. books
( ) **63.** Reports
( ) **64.** Schedules
( ) **65.** Surveys
( ) **66.** Tapes
( ) **67.** Timetables
( ) **68.** Other

TIME ALLOTMENT FOR THE TASK BEING

( ) **70.** Unlimited or unspecified
( ) **71.** Preestimated at:
( ) **72.** Predetermined at:
( ) **73.** Other

THE LEVEL OF TASK FAMILIARITY BEING

( ) **74.** New task, never done before
( ) **75.** Task done only a few times before
( ) **76.** Task done many times previously
( ) **77.** Task done regularly, constantly
( ) **78.** Other

THE DEGREE OF DATA COMPLETENESS BEING

( ) **80.** All details available, organized
( ) **81.** All available but not organized
( ) **82.** Most details given, a few to get
( ) **83.** Some details given, much to get
( ) **84.** No details ready, all to obtain
( ) **85.** Other

THE EQUIPMENT FACILITATION BEING

( ) **90.** All useful equipment available
( ) **91.** All necessary equipment available
( ) **92.** Some useful equipment available
( ) **93.** Necessary equipment not available
( ) **94.** No special equipment is involved
( ) **95.** Other

DIRECTIONS (Task Sequence)	**CRITERIA**
The compiler executes the assignment in these steps:	*Each step is correct in terms of all the following:*
1. Analyzes the task.	**a.** Conditions were reviewed so that task was fully defined and all restrictions noted. **b.** Approach to task was planned, possibly based on a review of a similar prior assignment. **c.** The type, quantity, and probable organization of data needed for final product were summarized. **d.** Nature and origin of all missing data were noted.
2. Designs a plan for searching data resources for missing information.	**a.** Resources containing missing data were located. **b.** Arrangements for access to resources were made—materials, professional help, data-processing equipment, etc., as the case may necessitate. **c.** Conditions suitable for handling and compiling data were obtained.
3. Searches for and gathers missing data required in assignment.	**a.** Cross-checks on completeness and pertinence of the data were included in the search. **b.** Omissions in data were detected and corrected. **c.** Data were amassed in a consistent form suitable for ready consolidation and summation. **d.** Obtained data were reviewed for adequacy in meeting the conditions of the task assignment.
4. Systematizes data in readiness for preparing the report on it.	**a.** Suitable plan of organization was designed. **b.** Data were consolidated into the organizational plan. **c.** Organized data were inventoried for possible data gaps (not obtained or, if obtained, not included or accounted for); gaps detected were corrected.
5. Records the data in the format dictated by, or inherent in, the assignment.	**a.** Data were presented according to the method defined by the nature of the task assignment. **b.** Data were confirmed against the conditions of the assignment, including the time restrictions. **c.** All data recording was proofread and confirmed by cross-checking or other suitable means.
6. Submits compilation for approval and/or delivers the product.	**a.** Assignment was approved and product accepted. **b.** Copies were transmitted according to policy.

CONDITIONS

Eliciting and Registering

PROTOTYPES

Office Caller. **Given the problem of eliciting information (61) from an unknown office caller, the elicitor questions the caller as the situation dictates (46) to collect data without using equipment (54) and determines his identity (name, title, affiliation) and reason for the visit (67) for the purpose of taking appropriate action (66), such as making an appointment, obtaining a business card, answering a question, making a record of the request, etc. The information was elicited in such a way that three evaluators would rate the performance as acceptable.**

Credit Information. **Given the task of obtaining by telephone (53) credit (1) information from a bank (36) about a customer, the elicitor completes a preprinted investigation form (44) for the purpose of screening (60) the customer for a charge account. The requested information was registered completely, accurately, and legibly. Few, if any, negative attitudes were exhibited or comments made and positive attitudes were exhibited and reinforcing comments made.**

GIVEN THE FOLLOWING ELICITING-REGISTERING ASSIGNMENT IN SECURING INFORMATION ABOUT

Customers

( ) **1.** Customer's credit rating
( ) **2.** Sales to customers
( ) **3.** Customer's profile
( ) **4.** Other

Personnel

( ) **5.** Personal data
( ) **6.** Payroll information
( ) **7.** Job title of employee
( ) **8.** Attitudes, habits, and needs of employees
( ) **9.** Others outside the organization
( ) **10.** Vendors
( ) **11.** Institutions
( ) **12.** Governmental agencies
( ) **13.** Others

Task

( ) **14.** Description
( ) **15.** Length
( ) **16.** Sources of data
( ) **17.** Time schedule for completion
( ) **18.** Exceptions to normal routine
( ) **19.** Degree of familiarity
( ) **20.** Equipment needed
( ) **21.** Other

Regulations

( ) **22.** Legal
( ) **23.** Company
( ) **24.** Other

Policy

( ) **25.** Tardiness
( ) **26.** Absenteeism
( ) **27.** Working conditions
( ) **28.** Vacation
( ) **29.** Delegation of authority
( ) **30.** Assignment of responsibility
( ) **31.** Public relations
( ) **32.** Customer relations
( ) **33.** Other

DRAWN FROM THE FOLLOWING SOURCE

( ) **34.** Customer
( ) **35.** Vendor
( ) **36.** Institutions
( ) **37.** Governmental agencies
( ) **38.** Consultants and contractors
( ) **39.** Superior
( ) **40.** Co-worker
( ) **41.** Subordinates
( ) **42.** Staff
( ) **43.** Other

USING THE FOLLOWING METHODS

Questioning

( ) **44.** Form guided (preprinted form)
( ) **45.** Procedure guided (predetermined process)
( ) **46.** Situation guided

Overt Action

( ) **47.** Display
( ) **48.** Demonstration
( ) **49.** Example
( ) **50.** Combination of above
( ) **51.** Other

AND THE FOLLOWING EQUIPMENT

For Eliciting

( ) **52.** Data communications devices
( ) **53.** Telephone (video and audio)
( ) **54.** None
( ) **55.** Other

For Registering

( ) **56.** Typewriter
( ) **57.** Manual
( ) **58.** Data communication services
( ) **59.** Other

FOR THE FOLLOWING PURPOSES

( ) **60.** Screening
( ) **61.** Data collecting
( ) **62.** Confirming
( ) **63.** Analyzing
( ) **64.** Storing
( ) **65.** Manipulating: calculating, refining, etc.
( ) **66.** Taking appropriate action
( ) **67.** Other

DIRECTIONS (Task Sequence)	**CRITERIA**
The elicitor executes the assignment in the following steps. (The sequence of these steps varies from time to time. It is possible that some will occur simultaneously.)	*Each step is correct in terms of all the following:*
1. Registers the initial information given.	**a.** The elicitor made a record of the initial information given.
2. Analyzes the information to determine whether sufficient information has been given to interpret or rephrase the problem.	**a.** The problem was or was not recognized.
3. Analyzes your discussion with the elicitee to determine his role.	**a.** The elicitee gave detailed information about his role.
4. Establishes rapport with elicitee if necessary.	**a.** The elicitor exhibited no obvious negative attitudes. **b.** The elicitor exhibited obvious positive attitudes.
5. Selects the method to elicit further information. *a.* Asks for information to clarify the problem. *b.* Formulates a plan to elicit additional information.	**a.** If the problem has not been recognized, information was obtained to recognize it. **b.** A form-guided, procedure-guided, situation-guided, or combination plan was adopted. **c.** A checklist, demonstration, display, or other appropriate action was used.
6. Actuates the plan.	**a.** The plan was carried out. **b.** Required modifications were made in the plan. **c.** The plan selected was an adequate plan; the elicitor was able to obtain all needed information.
7. Designs a plan to register the data or information, including the equipment needed.	**a.** The plan outlined the method and listed equipment needed for registration.
8. Registers the information.	**a.** The requested information was registered completely, accurately, and legibly. **b.** Modifications were made in the registering plan.
9. Analyzes the registered information.	**a.** The format was acceptable. **b.** The information was rearranged in final form.
10. Evaluates the eliciting-registering process.	The elicitor conducted a self-evaluation of the eliciting-registering process.

PROTOTYPES

Given a new customer of a store (3), with a product but no definite brand of product in mind (5), who knows the general price range of the product (10), does not know the salesperson (14), feels neutral toward the store (16), has a moderate need for the product (19), has abundant financial resources (21), requiring sales assistance to ship the product (25), and arrives at the store when several other customers are waiting to be served (28).

Tasks: The salesperson welcomes the customer, questions the customer, listens, empathizes, demonstrates the product (towels and bedding), answers customer's questions, quotes a price, registers the sale, sends the customer's order by parcel service, and suggests related merchandise.

Given a regular customer of the store with a charge plate (1), who has no product in mind (6), who buys on impulse (9), who knows the salesperson well (12), who has a favorable impression of the store (15), who has a moderate, although unknown, need for a product (19), has abundant financial resources (21), needs salesperson to explain product features (25), and arrives when the salesperson is not occupied serving other customers (30).

Tasks: The salesperson greets the customer, elicits customer's response, suggests merchandise, informs customer of benefits, quotes a price, registers the sale, and suggests related merchandise.

Given a customer who trades with the store infrequently (2), has a need for a new suit but has no brand in mind (5), knows he wants a suit in the $85–$95 price range (10), knows the salesman (12), has had pleasant trading experience with the store (15), has an urgent need for a new suit for a business trip (18), has limited but adequate financial resources (22), requires a salesman to explain the product and select a suitable color and fit (25), and arrives at the store when the salesman is occupied with one other customer (29).

Tasks: The salesman acknowledges the customer, determines the type of suit required, the price range applicable, shows several suits, assists the customer in trying on the suits, empathizes with the customer, answers customer's questions and objections, closes the sale, arranges for delivery, rings up the sale, and sells the customer two ties to match his new suit.

Given a motorist who trades regularly with the service station and has a charge plate (1), who knows his car is not operating properly but does not know the reason (7), who knows general price ranges but rarely shops around (10), who barely knows the service station attendant (13), who has a favorable impression of the station (15), who has an urgent need to have his car in proper operating condition (18), has limited but adequate financial resources (22), who needs a service station attendant to diagnose the trouble with the car (25), and who arrives at the station when the attendant is serving one customer ahead of him (29).

Tasks: The service station attendant greets the customer, questions the customer, inspects the car, tests the battery, discovers it is old, weak, and corroded, informs the customer he needs a new battery, suggests a definite brand, demonstrates its features, explains the guarantee, obtains agreement on price, installs the battery, writes up the order, registers the sale, and suggests the customer "fill 'er up" while he is there.

Given a homeowner-customer who is a new customer (3), wants

CONDITIONS

Salesperson

Given a Customer

WITH THE FOLLOWING FAMILIARITY WITH THE STORE OR BUSINESS

( ) **1.** Trades with the store at least once every 60 days
  ( ) without charge account
  ( ) with charge account
( ) **2.** Trades with the store infrequently (less than every 60 days)
( ) **3.** New customer (first time in the store)

ENTERING THE STORE OR SERVICE BUSINESS WITH THIS AMOUNT OF PRODUCT DETERMINATION

( ) **4.** Has a definite product and brand in mind
( ) **5.** Has a product in mind but no definite brand preference
( ) **6.** Has no product in mind (impulse shopper or browser)
( ) **7.** Other

WITH THIS AMOUNT OF PRICE FLEXIBILITY

( ) **8.** Compares brands and prices in several stores
( ) **9.** Buys on impulse without shopping or knowing competitive prices
( ) **10.** Knows general price range but rarely shops more than one store
( ) **11.** Other

WITH THE FOLLOWING FAMILIARITY WITH THE SALESPERSON

( ) **12.** Knows him well
( ) **13.** Bare acquaintance
( ) **14.** Does not know him

WITH THE FOLLOWING ATTITUDES TOWARD OR EXPERIENCE WITH THE STORE OR BUSINESS

( ) **15.** Pleasant or favorable
( ) **16.** Neutral or indifferent
( ) **17.** Unpleasant

WITH THE FOLLOWING KNOWN OR UNKNOWN NEED FOR THE PRODUCT OR SERVICE

( ) **18.** Has an urgent need
( ) **19.** Has a moderate need
( ) **20.** Has little need

WITH THE FOLLOWING FINANCIAL ABILITY TO SATISFY THAT NEED

( ) **21.** Has abundant financial resources available to consummate sale
( ) **22.** Has limited but adequate financial resources available to consummate sale
( ) **23.** Unable to consummate sale at this time
( ) **24.** Other

WITH THE FOLLOWING AMOUNT OF SALES ASSISTANCE NORMALLY REQUIRED TO CONSUMMATE THE SALE

( ) **25.** Salesperson essential
  ( ) to explain product features and operation
  ( ) to negotiate a trade-in
  ( ) to negotiate a financing arrangement
  ( ) to arrange shipping terms
  ( ) other
( ) **26.** Salesperson helpful, but self-service is available
( ) **27.** Limited need for salesperson (merchandise displayed for self-service)

WITH THE FOLLOWING DEMANDS ON THE SALESPERSON'S TIME

( ) **28.** Extremely rushed—several customers waiting to be served
( ) **29.** Has one additional customer that he is currently serving
( ) **30.** Not currently occupied serving customers
( ) **31.** Other

o decorate two rooms in her home but has no particular brand n mind (6), is asking for estimates from several stores, does not know the interior decorator (14), has a favorable impression of the store on recommendation of a friend (15), has an urgent need (18) to decorate her new home which is situated in an elegant part of Topanga Canyon, has abundant financial resources (21), has need for a high degree of assistance from the interior decorator (25), and has the full attention of the decorator who is making a home visitation.

Tasks: The interior decorator questions the customer to determine need, empathizes with the customer to determine her buying motives, listens to the customer, demonstrates her products, informs the customer of the custom-fitting and other services which are sold with the product, verbalizes with the customer to overcome indecisiveness, answers customer's questions, quotes a price, negotiates an allowance for existing home furnishings, writes up an agreement for signature, and reaches agreement with customer regarding a delivery date.

Given a homeowner who is a new customer (3), who wants to convert his older home to 100 plus wiring (5), who has only a vague knowledge of wiring costs (10), who does not know the electrician (14), who has neutral feelings toward the electrician (16), who has a moderate need for the modern wiring (19), who is unable to pay cash for the services at this time (23), who needs a high amount of assistance in terms of the product, installation costs, and financing costs (25), and who has the undivided attention of the homeowner (30).

Tasks: The electrician questions the customer, etc.; selling tasks similar to the interior decorator (preceding prototype).

DIRECTIONS (Task Sequence)	**CRITERIA**
The salesperson executes the following tasks in the selling process:	*Each step is correct in terms of all the following:*
1. Welcomes (greets) the customer.	a. Smiled, used an appropriate greeting. b. Acknowledged customer's approach if currently occupied. c. Was appropriately dressed. d. Gained customer's undivided *attention.*
2. Questions the customer to determine needs. Empathizes with customer to determine buying motives. Elicits customer's response. Listens to the customer.	a. Asked prospect to identify needs. b. Determined whether prospect had the ability to consummate sale. c. Qualified prospect in terms of: ( ) degree of need ( ) ability to pay ( ) amount willing to pay d. Identified his product or service which could potentially satisfy the customer's need. e. Aroused customer's interest in specific product or service. f. Gained customer's approval to proceed with the presentation of specific product or service. g. Terminated selling process retaining customer goodwill. h. Other.
3. Shows (demonstrates) the product or service. Informs customer of product features and benefits. Instructs customer on proper use of product.	a. Had full knowledge of product or service. b. Related product features to customer's needs. c. Developed customer's benefits inherent in product or service. d. Involved the following customer senses: ( ) hearing ( ) sight ( ) touch ( ) smell e. Involved the customer in the presentation and gained sales feedback information on which to build the presentation. f. Aroused customer's *desire* for the product.
4. Circumvents customer's resistance by overcoming objections. Perseveres in spite of apparent customer's opposition. Verbalizes to clarify or overcome customer's indecisiveness. Yields (or concedes) on minor points to reach agreement on major points. Answers customer's objections.	a. Determined the real objection. b. Identified possible alternate solutions. c. Sorted out real objections from excuses. d. Determined whether close could come at once or had to be postponed. e. Obtained customer's conviction.
5. Negotiates to try to reach an agreement. Quotes prices. Computes the sale, including tax and delivery charges. Writes up the order. Registers the order by ringing up the sale. Wraps the order. Sends customer's order by best method.	a. Knew when to stop the presentation and close. b. Asked for the order. c. Obtained cash or arranged for credit. d. Wrote up or rang up sale (or both). e. Wrapped merchandise. f. Arranged for delivery.
6. Suggests the purchase of additional or related merchandise.	a. Suggested related merchandise. b. Suggested additional amounts of same merchandise.

Performance Goals in Health Education

The rapid expansion of existing health occupations and the emergence of new ones in all areas of the health field directly influence the standards and the quality of patient care. The technological changes, the changing role of the professional health person, the changing concepts in the health assistant's education, and the increasing use of the assistant are indicative of the need to emphasize performance goals in the health occupations. With the greater amount of patient care now being given by the assistant health workers, the future of this care depends on positively identifying the learning experiences of students in terms of performance goals with expected outcomes.

Teachers in the health occupations are acutely aware of the degree of exactness required for the performance of each procedure in caring for the patient. In a way, teachers have been practicing performance goals by simulating work experiences and planned clinical experiences on the job. The problem is stating the educational goals in terms of the student's performance at the various stages in learning a procedure and defining the criteria for recognizing the performance in achieving the desired goal.

A prerequisite for preparing performance goals is an analysis of what is being taught, and identifying the sequence of the steps for executing the procedure with the criteria for recognizing the student's performance. For example, the value of the assistant health worker (ward clerk, practical nurse, dental assistant, others) is achieved only when the assistant is able to convert the various job components by organizing them into the total procedure.

Health-occupation teachers are often faced with the difficult task in determining the depth and scope of the curricula content for health assistants. By developing checklists, such as the ones in this manual, using realistic work conditions and situations, the teacher can identify and organize the job components, preparing performance goals to meet the student's educational needs in his chosen occupation. At the same time the teacher identifies the methods, materials, and expected outcomes, organizing the various tasks, with criteria that measure the student's ability to perform each of the various components in the procedure.

Preparing checklists similar to the ones in this manual, the teacher builds the curricula boundaries into the conditions, consistent with the effective level of performance of the health assistant and the quality of that performance.

The prototypes in this manual are examples of performance goals, using a checklist with verification of the student's performance. Writing performance goals, by selecting from a variety of realistic conditions with which the student will be confronted on the job, allows the teacher to plan effective learning experiences with clear concise direction of the skills to be performed and the expected quality of that performance. Performance goals also provide the student with directions that he can understand. He will know what is expected of him and the degree of performance he must achieve.

Loading and Operating Mechanical Sterilizers

PROTOTYPES

Given 50 assorted-size (1) packages and bundles in a sterilizing room in the operating-room unit (30), containing freshly laundered linens and clean (6) gauze, with packages loosely wrapped, labeled, and ends secured with heat-sensitive tape (14). Packages are sorted as to size (16) and density, being arranged in sterilizer for rapid permeation of steam in and around (20) each package, with sterilizing agent being moist heat. The surgical technician preheats and operates the autoclave (42, 38), saturating the packages (34) with steam under pressure, killing all forms of microorganisms (27) before unlocking door to dry sterile packages of surgical dry goods (45). The surgical technician, with some previous experience assisting others (50) load and operate the autoclave, will work under close supervision (58). The task should be completed in 70 minutes (55), including sterilizing and drying time.

Given 2 sets (2) clean major-surgery (18) instruments with forceps unlocked (5) in a substerilizing room (31) in the operating-room unit, sorted and arranged on tray (40) with perforated bottom, allowing moist heat (25) to contact all surfaces (21) of each instrument. The surgical technician submerges them in boiling water (35) under steam, cleaning and sterilizing (28) them to make instruments safe for immediate use (46), operating the preheated instrument-washer sterilizer. The surgical technician with prior experience in loading (49) and operating mechanical sterilizers will complete the task with little or no supervision (60). The task is to be completed in less than 15 minutes (53) including sterilizing time.

CONDITIONS

GIVEN

( ) **1.** 50 to 100 assorted sizes or bundles
( ) **2.** 2 sets instruments (major surgery)
( ) **3.** 25 metal containers
( ) **4.** Other

Note: The following may be considered as limitations or refinements to the given.

With Conditions of Surgical Supplies Being

( ) **5.** Clean instruments-forceps unlocked
( ) **6.** Freshly laundered linens and clean gauze sponges
( ) **7.** Clean cotton balls
( ) **8.** Various oils
( ) **9.** Clean metal basins
( ) **10.** Rubber goods
( ) **11.** Outdated sterilized dry goods
( ) **12.** Other

With Packages Loosely Wrapped, Labeled, and Secured with

( ) **13.** Cord
( ) **14.** Heat-sensitive tape
( ) **15.** All of above

With Supplies Sorted for Placement in Sterilizer Being

( ) **16.** According to size and density of package
( ) **17.** Content of package or container
( ) **18.** Type of instruments
( ) **19.** Other

With Arrangement of Supplies in Sterilizer Being

( ) **20.** Rapid permeation of steam in and around each pack
( ) **21.** Contact with surfaces
( ) **22.** Separate from other supplies
( ) **23.** Other

With Sterilizing Agent Being

( ) **24.** Dry heat
( ) **25.** Moist heat
( ) **26.** Gas

PURPOSE

( ) **27.** Killing all forms of microorganisms
( ) **28.** Cleaning and sterilizing surgical instruments
( ) **29.** Separating supplies

SOURCE (LOCATION)

( ) **30.** Sterlizing room in operating-room unit
( ) **31.** Substerilizing room, operating-room unit
( ) **32.** Central supply
( ) **33.** Other

METHOD

( ) **34.** Saturating them with steam under pressure
( ) **35.** Submerging them in boiling water under pressure
( ) **36.** Penetrating them with dry heat
( ) **37.** Other

Note: The following may be considered as limitations or refinements to the given.

Equipment and Supplies

( ) **38.** Automatic autoclave with trays and wire baskets
( ) **39.** Dry-heat autoclave
( ) **40.** Instrument-washer sterilizer with tray
( ) **41.** Other

With Condition of Sterilizer Being

( ) **42.** Cold
( ) **43.** Used recently
( ) **44.** In use

OUTPUT

( ) **45.** Drying sterile surgical dry goods
( ) **46.** Making instruments safe for immediate use
( ) **47.** Sterilizing rubber goods and delicate instruments
( ) **48.** Other

QUALITY (SURGICAL TECHNICIAN)

( ) **49.** Experienced in loading and operating mechanical sterilizers
( ) **50.** Assisted others in sterilizing procedures
( ) **51.** Observed the loading and operating of mechanical sterilizer
( ) **52.** Others

WITH TASK TO BE COMPLETED (INCLUDING STERILIZATION TIME)

( ) **53.** 15 minutes
( ) **54.** 55 minutes
( ) **55.** 70 minutes
( ) **56.** 2 hours
( ) **57.** Hours

ENABLING BEHAVIOR (PREVIOUS EXPERIENCE)

( ) **58.** Completed with close supervision
( ) **59.** Completed with assistance
( ) **60.** Completed with little or no supervision
( ) **61.** Other

DIRECTIONS **(Task Sequence)**	**CRITERIA**
The surgical technician loads and operates mechanical sterilizers by executing the following tasks:	*Each step is correct in terms of all the following:*
1. Recognizes that surgical supplies are ready for sterilization.	a. Action was taken to investigate what type of supplies were to be sterilized.
2. Selects mechanical sterilizers.	a. Decision was made regarding the type of sterilizers needed for the day's sterilizing activity. b. Steam under pressure using the autoclave was selected for sterilizing dry goods, instrument-washer sterilizer was selected for quick washing and sterilizing instruments. Dry heat was selected for oils, powder—if these were included.
3. Checks sterilizers and makes necessary adjustments.	a. Autoclave panel and gauges were checked. b. Previous day's temperature graph was replaced—used graph filed. c. All sterilizers were in good condition.
4. Preheats mechanical sterilizer.	a. Demonstrated knowledge of causes of faulty sterilization. b. Condensation of steam on chamber walls was prevented—steam was admitted into jacket of autoclave. c. Jacket pressure was raised to 15–17 pounds. d. Instrument-washer sterilizer was turned on.
5. Sorts packages and other supplies.	a. Damage to sterilizers and waste of supplies were prevented. b. Packages were inspected for content, date, amount, closure and indicator. c. Supplies were sorted, with rubber goods separated from other packages—oils and ointments were separated. d. Packages of surgical dry goods were sorted as to size and density of pack or bundle.
6. Arranges supplies inside sterilizer.	a. Packages of surgical dry goods were arranged to allow rapid penetration of steam to all surfaces of each one. b. Large bundles were placed on side in lower section of autoclave. c. Small packages were placed in upper sections. d. Packages of rubber goods were arranged on tray in upper part of autoclave—if these were sterilized. e. Pans with oils and ointments were placed in oven with lids removed and resting against side of pan—if these were sterilized. f. Instruments were arranged in tray with forceps unlocked and all surfaces of each instrument in direct contact with boiling water under pressure.
7. Makes certain packages and other supplies are not in contact with metal part of sterilizer.	a. Excessive wetting and damage to load was prevented. b. Packages were a safe distance from chamber walls and autoclave door when closed. c. Instruments were placed correctly in sterilizer—if being sterilized at this time.
8. Determines length of time for sterilization process and sets controls.	a. Time shown on chart for sterilizing largest bundle in autoclave was selected; 3–7 minutes was selected for instruments. b. Sterilizer door was closed and locked. c. Automatic sterilizer was set to time exposure, to exhaust steam, and to regulate drying process. d. Timing was started when chamber gauge on autoclave read 250°F—instrument washer sterilizer 273°F and dry oven 320°F when the latter two were being used.
9. Completes cooling and drying process.	a. Prevention of burns to self was demonstrated—all steam was exhausted from sterilizer. b. Door of autoclave was unlocked and left slightly opened for cooling. c. Instruments were lifted out of sterilizer and carried to scrubbed nurse for placing on the sterile table.
10. Removes packages from sterilizer.	a. Care was exercised to prevent sweating of packages. b. Packages were removed and placed on a warm surface—lids were placed on metal containers—if these were sterilized. c. Plans were made to store sterile supplies in sterile storage area—when thoroughly cooled.
11. Evaluates success in completing the procedure.	a. Condition of the packages and other supplies was analyzed. b. Plans were made to improve technique in loading the autoclave.

Scheduling and Assisting Dentist in Performing Treatments

PROTOTYPES

Given one normal (12) adult (3), age 30 (7), in a dentist's operatory (29) with many previous (10) dental experiences, is on time (17) for the appointment, with a pleasant and cooperative (22) attitude. The dental assistant sets up (32) for a procedure (26) and maintains the dentist's efficiency while assisting (41) him to restore an anterior cavity, using local anesthetic (36), ultrahigh speed equipment, burs, instruments, supplies, and restorative materials. The dental assistant has assisted in setting up and assisting (41) dentist under similar situations before (32) and is expected to work at dentist's speed (50) with some instructions from supervisor (45).

Given one handicapped (14) child (1), age 6 years (4), in a school dental (30) clinic, with child being apprehensive (21) and resisting examination, with no previous experiences (8) in dental care. The dental assistant is to use an oral cavity record (38) form, marking and recording the exact findings (34) of the dentist to open the child's dental record. The dental assistant who has no previous experience (55) in assisting and keeping records (42) will work under close supervision (44) of the supervisor and is expected to complete the task in 20 minutes (49) or when dentist has completed the examination.

CONDITIONS

GIVEN

( ) **1.** 1 child
( ) **2.** 1 adolescent
( ) **3.** 1 adult

Note: The following may be considered as limitations or refinements to the given.

Of the Following Ages

( ) **4.** 6 years
( ) **5.** 13 years
( ) **6.** 20 years
( ) **7.** 30 years or over

Patient's Prior Experience

( ) **8.** First visit
( ) **9.** Second visit
( ) **10.** Many previous visits
( ) **11.** Other

Patient's Physical and Mental Condition

( ) **12.** Normal
( ) **13.** Heart
( ) **14.** Handicapped
( ) **15.** Other

With Incentive to Keep Appointment

( ) **16.** Usually late
( ) **17.** On time
( ) **18.** No appointment made
( ) **19.** Other

With Patient's Attitude Toward Dental Work Being

( ) **20.** Unpleasant
( ) **21.** Apprehensive
( ) **22.** Cooperative—pleasant
( ) **23.** Other

PURPOSE

( ) **24.** Scheduling appointments
( ) **25.** Maintaining dentist's efficiency
( ) **26.** Recording results
( ) **27.** Other

SOURCE (LOCATION)

( ) **28.** Dentist's operatory or office
( ) **29.** Hospital operating room
( ) **30.** School dental clinic
( ) **31.** Other

METHODS

( ) **32.** Setting up
( ) **33.** Estimating time
( ) **34.** Marking exact location
( ) **35.** Other

Note: The following may be considered as limitations or refinements to the given.

Equipment and Supplies

( ) **36.** Local anesthetic, ultrahigh speed equipment, burs, instruments, supplies, restorative materials, and tools
( ) **37.** Appointment book and card
( ) **38.** Oral cavity record
( ) **39.** Other

OUTPUT

( ) **40.** Allocating time
( ) **41.** Assisting him with procedure
( ) **42.** Opening record
( ) **43.** Other

QUALITY

( ) **44.** Completed with close supervision by supervisor
( ) **45.** Completed with some instruction from dentist
( ) **46.** Assisted by supervisor in carrying out the task
( ) **47.** Other

WITH TASK TO BE COMPLETED

( ) **48.** 5 minutes
( ) **49.** 20 minutes or at dentist's speed
( ) **50.** 20 minutes or at dentist's speed
( ) **51.** Other

ENABLING BEHAVIOR (PREVIOUS EXPERIENCE) OF DENTAL ASSISTANT

( ) **52.** Experienced in assisting dentist
( ) **53.** Assisted supervisor in performing assistant's duties
( ) **54.** Observed the activities of a dental assistant
( ) **55.** No experience

DIRECTIONS (Task Sequence)	CRITERIA
The dental assistant sets up and assists dentist in performing treatments by executing the following tasks:	*Each step is correct in terms of all the following:*
1. Acknowledges arrival of patient for appointment.	**a.** Appropriate greeting was made. **b.** Patient was given an estimated time for waiting. **c.** Indication appointment had been kept was noted.
2. Removes patient's record from file.	**a.** Need for recording examination and treatment was recognized. **b.** Record was placed in operatory.
3. Prepares for dentist to carry out procedure.	**a.** Full knowledge of instruments and supplies needed by dentist was demonstrated. **b.** Instruments and supplies were placed within easy reach for dentist. **c.** Dentist was consulted before selecting restorative material and local anesthetic—if needed.
4. Interacts with patient.	**a.** Patient was invited into operatory and made comfortable in dental chair. **b.** Patient was prepared for dental procedure. **c.** All questions were answered or referred to dentist.
5. Anticipates dentist's and patient's needs.	**a.** Patient's and dentist's needs were quickly and accurately anticipated. **b.** Operative area was kept clean and visible to dentist—if needed. **c.** Oral cavity record was checked—if needed. **d.** Restorative materials were mixed ready for dentist—if needed.
6. Acknowledges dentist's termination of procedure.	**a.** Clean-up was started while dentist completed procedure. **b.** Patient's needs were met before being assisted out of chair.
7. Schedules appointment for next visit.	**a.** Time needed for treatment was estimated—if necessary for patient to return. **b.** Appointment was scheduled according to time previously allocated in the appointment book for other patients. **c.** Appointment card was given to patient with date of next appointment.
8. Terminates task.	**a.** Used instruments were washed and placed in water sterilizer. **b.** Safe disposal of used supplies was demonstrated. **c.** Record was placed in file. **d.** Operatory was ready for next patient.
9. Evaluates success in assisting dentist.	**a.** Preparation for procedure and assisting dentist was analyzed. **b.** Plans were made to improve performance.

Interviewing a Patient and Admitting Him to Hospital

PROTOTYPES

Given one 65-year-old (6) ambulatory (14) adult (3) accompanied by spouse (21) in a hospital admitting office; shows a worried and apprehensive (16) feeling about condition, with one previous admission (9), has third party (25) pay. The admitting (33) clerk elicits (36) and secures personal information (28) to assign (43) the patient a room in the appropriate nursing-care unit using office supplies, and machines (40), special forms, charge-a-plate blanks, plastic bracelet, and master file. The admitting clerk will be assisted closely (47) by supervisor since she has only observed the interviewing and placement (57) of patients being admitted to a hospital. The task should be completed in 30 minutes (51) or less.

Given one adolescent (2) age 15 (5), hospitalized because of accidental injury (12), with many previous admissions (10), is discontented with room accommodations (17), with parent (20) present, and account classified general pay (24). The admitting clerk following interview with parent selects vacancy (37) using master file (41) and markers transferring patient (29) to another room, to carry out the doctor's instructions (44) for a transfer. The admitting clerk with prior experience in placing patients (55) is expected to complete the task in 15 minutes (52) if vacancy is available, with little or no supervision (49).

CONDITIONS

GIVEN

( ) **1.** 1 child
( ) **2.** 1 adolescent
( ) **3.** 1 adult

Note: The following may be considered as limitations or refinements to the given.

In the Following Age Groups

( ) **4.** Newborn to 12 years
( ) **5.** 13–21 years
( ) **6.** 22–65 years
( ) **7.** Over 65 years

With Prior Experience of Being Hospitalized

( ) **8.** None
( ) **9.** One previous admission
( ) **10.** Many admissions
( ) **11.** Presently in a hospital bed

Present Condition of Patient Being

( ) **12.** Accidental injury
( ) **13.** Critical
( ) **14.** Ambulatory
( ) **15.** Other

With Attitude Toward Being Hospitalized

( ) **16.** Apprehensive and worried
( ) **17.** Discontented with room
( ) **18.** No evidence of feelings
( ) **19.** Other

Accompanied to Hospital by

( ) **20.** Parent
( ) **21.** Spouse
( ) **22.** Ambulance attendant, family
( ) **23.** Other

With Ability to Pay Classified in Following Manner

( ) **24.** General pay
( ) **25.** Third party pay
( ) **26.** Compensation
( ) **27.** Other

PURPOSE

( ) **28.** Securing personal information
( ) **29.** Transferring patient within hospital
( ) **30.** Arranging immediate admission
( ) **31.** Other

SOURCE (LOCATION)

( ) **32.** Hospital bed in room
( ) **33.** Hospital admitting office
( ) **34.** Emergency room
( ) **35.** Other

METHODS

( ) **36.** Eliciting information
( ) **37.** Selecting vacancy on request
( ) **38.** Interviewing family
( ) **39.** Other

Note: The following may be considered as limitations or refinements to the given.

Equipment and Supplies

( ) **40.** Office machines, special forms, carbon paper, charge-a-plate blanks, plastic bracelet, master file
( ) **41.** Master file, markers, telephone
( ) **42.** Office supplies, special forms, plastic bracelet, master file

OUTPUT

( ) **43.** Assigning room
( ) **44.** Carrying out instructions of doctor
( ) **45.** Directing escort to transport patient
( ) **46.** Other

QUALITY (ADMITTING CLERK)

( ) **47.** Completed with close supervision by supervisor
( ) **48.** Completed with some supervision by supervisor
( ) **49.** Completed with little supervision by supervisor
( ) **50.** Other

WITH PROCEDURE TO BE COMPLETED IN FOLLOWING TIME

( ) **51.** 30 minutes
( ) **52.** 15 minutes if vacancy available
( ) **53.** 25 minutes
( ) **54.** Other

ENABLING BEHAVIOR (PREVIOUS EXPERIENCE) OF HOSPITAL ADMISSION CLERK

( ) **55.** Experienced in placing patients
( ) **56.** Assisted supervisor place patients
( ) **57.** Observed supervisor place patients
( ) **58.** No experience

DIRECTIONS (Task Sequence)	**CRITERIA**
The hospital admitting clerk interviews and places a patient in the hospital by executing the following tasks:	*Each step is correct in terms of all the following:*
1. Makes approach to patient or escort.	**a.** Appropriate greeting was made to patient. **b.** Condition of patient was evaluated before beginning interview in private office. **c.** Patient's purpose for entering hospital and name of physician was determined.
2. Observes attitude of patient and escort.	**a.** Assurance of care and treatment was given and patient made comfortable. **b.** Immediate arrangements to place patient were made—if condition serious.
3. Explains hospital's admission policies.	**a.** Full knowledge of room accommodations, rates and visiting privileges was demonstrated by patient—or family if a transfer was requested. **b.** Questions were answered tactfully and completely. **c.** Information was obtained from head nurse regarding transfer—if this was being requested.
4. Elicits personal information from patient or escort.	**a.** Personal information given by patient was typed on admission record during the interview—if appropriate at this time. **b.** Insurance information was recorded—or other means of payment.
5. Interacts with patient and escort during process of terminating the interview.	**a.** Consent for treatment was signed by person legally responsible for patient. **b.** Receipt was given for deposit—if needed. **c.** Patient or relative was informed of short waiting period—or when vacancy would be available.
6. Makes room assignments.	**a.** Master file was checked for vacancy—or for reservation if one was made. **b.** Patient was assigned room in the appropriate nursing-care unit—if possible at this time. **c.** Nursing station in unit was notified of patient's arrival—or transfer to another room.
7. Terminates admission procedure.	**a.** Duplication of information to accompany patient was completed and assembled. **b.** Card showing patient's location was placed or changed in the master file. **c.** Charge plate was made and identification bracelet placed on the patient's wrist.
8. Escorts patient and his escort to nursing-care unit.	**a.** Mode of transportation to assigned room was determined and secured—if necessary. **b.** Patient and escort were introduced to nurse on nursing-care unit. **c.** Duplicated information was given to nurse.
9. Evaluates success in admitting a patient.	**a.** Methods of interviewing and assigned room were analyzed. **b.** Plans were made to improve approach to the patient being admitted to the hospital.

CONDITIONS Cleaning and Making Hospital Beds

PROTOTYPES

Given one standard hospital bed (1) in a patient care unit (31), with patient having been discharged (8), bed washed and ready for clean linens (11), adjusted to ideal working height (14), side rails removed (25), mattress in level position (20). The health assistant selects a basic set (52) of linens (35) and positions them and plastic draw sheet and pillow on mattress, preparing a firm foundation with linens secured (38) with corners mitered (41), and top covers arranged neat (45) and straight, with pillow positioned at head (50), and makes a closed bed (27) to protect the foundation sheets (56) while bed is unoccupied. The health assistant will work with supervision (61), since she has only limited prior experience assisting others in cleaning and making hospital beds (69). The task should be completed in 10 minutes (64).

Given a hi-low bed (2) in low position (15), occupied by a patient in a nursing home (32), with linens soiled (10), permanent side rails (24) lowered at sides, mattress raised at head of bed. The health assistant adjusts bed and changes the linens, rolling the patient to change (36) linens and pull foundation sheet free of wrinkles (39) and firmly secured with corners mitered (41), and top covers arranged neatly (45) with pillow under patient's head (50) making an occupied bed (28) to refresh (57) and make the patient comfortable, using 2 large sheets, 1 plastic and linen draw sheet, spread, and pillowcase (55). The health assistant has assisted in cleaning and making hospital beds (68) under similar conditions and is expected to complete the task in 15 minutes (65) or less with little or no supervision (60).

GIVEN

( ) **1.** 1 standard hospital bed
( ) **2.** 1 hi-low hospital bed
( ) **3.** 1 fracture bed
( ) **4.** 1 crib

Note: The following may be considered as limitations or refinements to the given.

Bed Being Used by Patient Who Is

( ) **5.** Ambulatory
( ) **6.** In surgery
( ) **7.** On bedrest
( ) **8.** Discharged
( ) **9.** Other

Present Condition of Bed Being

( ) **10.** Soiled linens on bed
( ) **11.** Ready for clean linens
( ) **12.** Soiled linens removed
( ) **13.** Other

With Height of Bed at Following Level

( ) **14.** Ideal working height
( ) **15.** Low position
( ) **16.** Shock position
( ) **17.** Other

With Mattress Positioned as Follows

( ) **18.** Raised at top and foot
( ) **19.** Raised at top of bed
( ) **20.** Level, pushed to head of bed even with springs
( ) **21.** Level

With Attachments Removed or Adjusted Being

( ) **22.** Overhead frame
( ) **23.** Traction apparatus
( ) **24.** Permanent side rails
( ) **25.** Detachable side rails
( ) **26.** Other

PURPOSE

( ) **27.** Making a closed bed
( ) **28.** Making an occupied bed
( ) **29.** Making a post-operative bed

SOURCE (LOCATION)

( ) **31.** Patient care unit
( ) **32.** Nursing home
( ) **33.** Clinic
( ) **34.** Other

METHODS

( ) **35.** Selecting and placing linens
( ) **36.** Rolling patient while removing and adding linens
( ) **37.** Arranging linens

Note: The following may be considered as limitations or refinements to the given.

With Foundation (Large Sheet, Draw Sheets) Being

( ) **38.** Firm and linens secured
( ) **39.** Wrinkle free and linens secured
( ) **40.** Partially exposed

With Corners of Large Sheets and Spread Being

( ) **41.** Mitered
( ) **42.** Boxed
( ) **43.** Left hanging and mitered

With Top Covers Arranged

( ) **44.** Even with top of mattress
( ) **45.** Neat appearing
( ) **46.** Folded lengthwise and rolled
( ) **47.** Other

With Pillow Covered and Placed

( ) **48.** With open end away from door
( ) **49.** In a convenient place
( ) **50.** At patient's head
( ) **51.** Other

Equipment and Supplies

( ) **52.** 1 basic set of linens, 1 plastic draw sheet, 1 pillow
( ) **53.** 2 large sheets, 1 plastic and linen draw sheet, 1 pillowcase
( ) **54.** 1 spread, 2 large sheets, 2 plastic and linen draw sheets, 1 pillowcase
( ) **55.** Other

OUTPUT

( ) **56.** Protecting foundation sheets
( ) **57.** Refreshing the patient
( ) **58.** Receiving unconscious patient
( ) **59.** Other

QUALITY HEALTH ASSISTANT

( ) **60.** Completed with little supervision
( ) **61.** Completed with assistance of supervisor
( ) **62.** Assisted others in cleaning and making a bed
( ) **63.** Other

WITH TASK TO BE COMPLETED IN THIS AMOUNT OF TIME

( ) **64.** 10 minutes
( ) **65.** 15 minutes
( ) **66.** 20 minutes
( ) **67.** Other

ENABLING BEHAVIOR (PREVIOUS EXPERIENCE) OF HEALTH ASSISTANT BEING

( ) **68.** Experienced in cleaning and making hospital beds
( ) **69.** Assisted in cleaning and making hospital beds
( ) **70.** Observed others clean and make hospital beds
( ) **71.** Other

DIRECTIONS (Task Sequence)	CRITERIA
The health assistant cleans and makes a bed by executing the following tasks:	*Each step is correct in terms of all the following:*
1. Recognizes bed is ready for clean linens.	**a.** Appropriate measures were taken to provide safe environment. **b.** Bed frame and mattress were checked for cleanliness—if vacant. **c.** Appropriate manner was used in instructing patient—if present.
2. Selects and secures the amount of linens needed to make bed.	**a.** Full knowledge of kind and amount of linens was demonstrated. **b.** Linens were placed on chair and arranged in order of use.
3. Adjusts bed and positions mattress.	**a.** Self help, treatment, or protective attachments were adjusted or removed from frame—if needed. **b.** Foot and head of bed were leveled. **c.** Mattress was adjusted on springs.
4. Places clean linens on one side of bed.	**a.** Preventive measures were taken to avoid dragging clean linens on floor. **b.** Patient was rolled to center of bed, and soiled linens loosened and rolled close to his back—if bed is occupied. **c.** Foundation was prepared with mattress covered at sides and head, and linens and plastic draw sheet stretched tight and fastened securely under mattress. **d.** Draw sheets were approximately 15 inches from top of mattress. **e.** Exra draw sheets were added at head of bed—if needed.
5. Miters corners of foundation sheet.	**a.** Slippage of foundation sheet was prevented. **b.** Corners of foundation sheet were smooth-fitting and securely fastened.
6. Adds top sheet and spread.	**a.** Time and energy were saved by completing one side of bed at a time. **b.** Top sheet and spread were securely fastened under foot of mattress with a smooth fitting corner.
7. Reverses side and completes making the bed.	**a.** Efforts to maintain a safe environment were demonstrated. **b.** Soiled linens were removed and placed in hamper, or chair—if not before beginning to make bed. **c.** A firm foundation with linens secured and wrinkle free was achieved. **d.** Linens were stretched tight and tucked securely under mattress with smooth-fitting corners. **e.** Top covers were hanging even at sides with corners mitered at foot of mattress. **f.** Top covers were even with edge of mattress at head of bed—or arranged according to bed's use.
8. Covers pillow and places on bed.	**a.** Pillow was positioned on foot of bed before putting on cover and pillowcase. **b.** Pillowcase was pleated along edge of pillow. **c.** Pillow was placed at head of bed with open end away from entrance.
9. Evaluates success in making bed.	**a.** The esthetic factor of bed's appearance was analyzed. **b.** Patient's comfort and convenience in placing a patient were reviewed. **c.** Plans were made to improve body mechanics and make every movement useful.

Transcribing and Transferring Doctor's Orders in Assisting the Nurse

PROTOTYPES

Given four orders (2) for medications (9), written by doctor on order form in a patient's chart in the nurse's station, for a patient in the nursing-care unit (6), with directions and dosages written in symbols and abbreviations indicating medicines being standing (15) and limited time, with drugs (18) to be ordered. The ward clerk transcribes (35) and transfers the specific directions in the orders to cards (27) to guarantee the nurse's accuracy (43) when using medicine cards (39) with hours written in blue and red ink. The ward clerk with limited experience (57) in transcribing and transferring doctor's orders will work under close supervision (48) preparing only the medication cards at this time. The task should be completed in 10 minutes (53) or less.

Given two orders (1) for treatments (10), written by a resident physician on order form placed in a designated area (32) in the nurse's station, for a patient being admitted (5), with directions abbreviated indicating orders are to give immediately and limited time (16), and supplies (19) being required. The ward clerk is to use a requisition form, patient's charge plate, imprinter (41), and pen, preparing and forwarding the requisition (36) to the appropriate department, securing supplies (28) for nurses to execute the order (44). The ward clerk has transcribed and transferred orders before under similar situations (56) and is expected to complete the task in less than 5 minutes (52) with little supervision (50).

CONDITIONS

GIVEN

( ) **1.** 2 orders
( ) **2.** 4 orders
( ) **3.** 6 orders
( ) **4.** Other

Note: The following may be considered as limitations or refinements to the given.

With Orders Being Written by Doctor for a Patient

( ) **5.** Being admitted
( ) **6.** Present in the nursing-care unit
( ) **7.** Returning from recovery room
( ) **8.** Other

With Orders Classified as Being

( ) **9.** Medication
( ) **10.** Treatment
( ) **11.** Diagnostic
( ) **12.** Activity
( ) **13.** Other

With Directions Written in Abbreviations or Symbols Indicating Order Being

( ) **14.** One time only
( ) **15.** Standing and/or limited time
( ) **16.** Give immediately, limited time
( ) **17.** All of above

With Content in Order Requiring Materials Being

( ) **18.** Drugs
( ) **19.** Supplies
( ) **20.** Diagnostic services
( ) **21.** Special therapies
( ) **22.** Other

With Order Indicating Additional Treatment and Cure Being

( ) **23.** Preparation for surgery
( ) **24.** Preparation for X-ray
( ) **25.** Preparation for laboratory test
( ) **26.** Other

PURPOSE

( ) **27.** Transferring specific directions in doctor's orders to forms and cards
( ) **28.** Securing drugs and supplies
( ) **29.** Notifying departments
( ) **30.** Consolidating patient's treatment

SOURCE (NURSE'S STATION)

( ) **31.** Order form in patient's chart
( ) **32.** Order form in designated area
( ) **33.** Order form loose on desk
( ) **34.** Other

METHOD

( ) **35.** Transcribing orders
( ) **36.** Forwarding requisitions
( ) **37.** Telephoning department
( ) **38.** Other

Note: The following may be considered as limitations or refinements to the given.

Equipment and Supplies

( ) **39.** Forms—medication and treatment cards, red and blue ink pens
( ) **40.** Patient's file card
( ) **41.** Requisition forms, patient's charge plate, imprinter, outgoing basket, red and blue pens
( ) **42.** All of above

OUTPUT

( ) **43.** Guaranteeing nurse's accuracy
( ) **44.** Executing the order
( ) **45.** Giving reports
( ) **46.** Performing tests
( ) **47.** Other

QUALITY (WARD CLERK)

( ) **48.** Completed task with close supervision
( ) **49.** Completed with assistance of supervisor
( ) **50.** Completed with little supervision
( ) **51.** Other

WITH TASK TO BE COMPLETED

( ) **52.** 5 minutes
( ) **53.** 10 minutes
( ) **54.** 15 minutes
( ) **55.** Other

ENABLING BEHAVIOR (PREVIOUS EXPERIENCE) OF WARD CLERK

( ) **56.** Experienced in transcribing doctors' orders
( ) **57.** Assisted supervisor in transcribing orders
( ) **58.** No previous experience
( ) **59.** Other

DIRECTIONS (Task Sequence)	**CRITERIA**
The ward clerk transcribes doctor's written orders by executing the following tasks:	*Each step is correct in terms of all the following:*
1. Recognizes orders have been written.	**a.** Appropriate action was taken when orders were written by doctor. **b.** Indicator in chart was replaced to original position—if this was used.
2. Scans lists of orders.	**a.** Assistance of head nurse was obtained to interpret written order —if needed. **b.** Order to be executed immediately was noted. **c.** Card was prepared for "stat" medicine and given to nurse.
3. Selects forms, requisitions, pens, patient's name plate.	**a.** Full knowledge of the content in the order was demonstrated. **b.** Appropriate requisitions, forms, pens were selected. **c.** Additional content in order regarding preparation for tests, surgery was noted—cards and requisitions selected for procedural orders—if needed.
4. Requisitions drugs for supplies or test.	**a.** Means to obtain supplies to carry out the order was started. **b.** Prevention of waste and accurate charges to patient were considered when ordering supplies and drugs. **c.** Exact test was marked on appropriate requisition and forwarded to department to execute the order. **d.** Copy of requisition was retained at nurse's desk.
5. Copies orders exactly as written onto medication card.	**a.** Appropriate colored card indicating nature of order was selected and used. **b.** Cards were correctly labeled with the patient's name, location, doctor. **c.** Exact name of medicine, dosage, route, frequency and hours were listed accurately on each card. **d.** Date for last dose of medicine or treatment was written in red ink—if this was needed.
6. Terminates transcribing doctor's orders.	**a.** Patient's course of treatment was consolidated by copying order on patient's file card—for nurse's use. **b.** Possible errors were eliminated by checking completed forms against doctor's written orders. **c.** Indication written order had been transcribed was placed beside each line order.
7. Assembles completed forms for head nurse's review.	**a.** Recognition of head nurse's responsibility was demonstrated. **b.** Medication cards, requisitions, doctors' written orders were checked and signed by head nurse. **c.** Requisition for drugs, supplies or services was forwarded to appropriate department.
8. Interacts with nurse assigned to give medicines.	**a.** Full knowledge of new medicines ordered for patient was demonstrated by nurse. **b.** Questions regarding availability of medicine were answered politely and accurately.
9. Evaluates success in transcribing doctor's orders.	**a.** Accuracy and legibility of forms were analyzed. **b.** Plans were made to improve in the interpretation of abbreviations.

Performance Goals for Home Economics Education

WIDE VARIATIONS IN OCCUPATIONS

Occupations using the knowledge and skills of home economics vary in nature widely, ranging from those dealing primarily with materials, tools and/or technical equipment to those concerned primarily with the welfare of people, in which attitudes and abilities in human relationships are far more important than technical skills. In some occupations, such as the homemaker-home health aide, a rather equal balance may be maintained between the performances related to the physical and biological sciences and those related to the behavioral sciences. The diversity in content and type of behaviors required makes identification and statement of objectives for a training program somewhat more complex, and perhaps more important, than in a "purer" area of vocational technical education. The home economics educator responsible for training programs for one or more occupations may need to use more than one pattern or prototype for stating performance goals. Performance goals and behavioral objectives—a more common term for some home economics educators—are used interchangeably in the following paragraphs.

The prototypes given in this section have been developed using the general structure described in earlier chapters of this publication and are similar but not identical to the prototypes in other occupational fields. There are also slight variations among the home economics prototypes. The reader is invited to study, criticize, and revise those given. It is suggested that curriculum planners in home economics select an aspect of another home economics related occupation—or another aspect of one of those used here—and practice stating all the conditions related to the job, analyzing the tasks involved, and stating criteria for each part of the task. A suggested sequence for this exercise is to start with a job in which performance is rather easy to observe, for example salad making, and then try one in which affective behaviors may be included, such as directing play of three-year-olds or assisting elderly with oral hygiene, care of hair, and dressing.

AFFECTIVE BEHAVIORS

The procedures for developing the behavioral objectives that are affective in nature are similar to those for developing cognitive or psychomotor behaviors but more difficult because affective behaviors are not *directly* observable.

The curriculum planner who is selecting and stating performance goals for any occupation must be intimately acquainted with current procedures in that occupation. However, first-hand observations over a period of time will be of utmost importance in describing behaviors that reflect attitudes, commitments, appreciations or values required for human relations tasks. One suggested procedure is to identify or have identified a successful employee who seems to have the desired affective behaviors. Then, observe this person for several days or weeks and record everything he does that may be considered evidence of the desired affective behavior. For example, ask a director of a child-care center to identify a worker who apparently likes and accepts all children, observe this worker and make a record of actions that might support his favorable attitude. The record must be of observable actions, such as greeted every child with a smile and placed her arm around them; in staff discussion of two "problem" children made only positive and supportive comments concerning the children.

DANGERS

Clearly stated performance goals that grow out of accurate perceptions of the job to be done are essential for effective vocational education. There are some dangers in the process, which should not be dismissed. These have been succinctly stated by Albert F. Eiss in his article, "Performance Objectives," in the *Bulletin of National Association of Secondary School Principals,* January, 1970. Eiss includes as hazards the tendency to develop a "telephone book" list of trivial objectives, most of which are at the lower levels of cognitive domain and which may result in loss of spontaneity in the teaching-learning situation. He also points out as an important problem the psychological block experienced by some educators dealing with the behavioral objectives. Home economics educators will need to be sensitive to any opposition to the procedures or terms in working with others on curriculum planning.

The particular process of developing or generating objectives—performance goals—as well as the terminology may be left to individual curriculum planners. However, statements that will communicate to the learner what is expected of him and give the instructor clear direction for selecting learning experiences, evaluating progress and determining when the learner is ready for employment, need to have certain characteristics. These characteristics are thoroughly discussed in an earlier section of this publication and those who have selected this portion of the publication to read because of their interest in home economics are urged to return to that part of the publication and read, or reread, that section.

Help in selecting and stating affective objectives may be found in:

Krathwohl, D. R., B. S. Bloom, and B. B. Masia. *Taxonomy of Educational Objectives, Handbook II: Affective Domain.* New York: David McKay, Inc., 1964.

Mager, R. F. *Developing Attitudes Toward Learning.* Palo Alto, California: Fearon Publishers, 1968.

Eiss, Albert F. and Mary B. Harbeck. *Behavioral Objectives in the Affective Domain.* Washington, D.C.: National Science Supervisors Association, 1969.

Operating a Stainless Steel Steam-Jacketed Kettle

PROTOTYPE

Given the assignment of cooking carrots in a 20-gallon (1), manually (8) operated full-jacketed (10) floor mounted (12) trunion kettle (17), a school lunch (33) cook, who has general cooking responsibilities and full responsibility for task assigned (44), prepares kettle for cooking by adding exact amount of water (45) indicated in cooking manual, places food in kettle and closes lid, adjusts kettle for temperature (46), times process (48), turns off steamer (51) at end of cooking period, lifts lid (52) carefully, drains off liquid (53) and, using a perforated ladle, removes food (54) and places in serving container—washes kettle (55) and drain with warm and soapy water, rinses thoroughly.

CONDITIONS

GIVEN THE FOLLOWING EQUIPMENT

( ) **1.** Steam Jacket Kettle 2½–25 gallons
( ) **2.** Steam Jacket Kettle 26–50 gallons
( ) **3.** Steam Jacket Kettle 51–75 gallons
( ) **4.** Steam Jacket Kettle 76 and over

Note: The following may be considered as limitations or refinements to the given.

Energy Source

( ) **5.** Gas
( ) **6.** Electricity

Control

( ) **7.** Automatic
( ) **8.** Manual

Types of Jackets

( ) **9.** ⅔ jacketed
( ) **10.** Full-jacketed
( ) **11.** Self-contained

Mounting

( ) **12.** Floor
( ) **13.** Wall
( ) **14.** Table

Base

( ) **15.** Pedestal
( ) **16.** Tubular legs
( ) **17.** Trunion (tilting)

Pouring Lip

( ) **18.** Extra heavy, wide lip
( ) **19.** V-shaped pouring lip

Covers

( ) **20.** One-piece hinged
( ) **21.** Two-piece hinged drip trap
( ) **22.** Counter balance cover (self-contained)

Draw-Off

( ) **23.** Tangent compression disc valve
( ) **24.** Pouring lip (trunion)
( ) **25.** Vertical drain valve

Employee Whose Responsibilities Are

( ) **26.** Bakery cook
( ) **27.** Vegetable cook
( ) **28.** Entree cook

PURPOSE

( ) **29.** Boiling or stewing foods
( ) **30.** Processing foods for preservation
( ) **31.** Steaming foods

LOCATION

( ) **32.** Hospital kitchen
( ) **33.** School or employee lunch program
( ) **34.** College food service
( ) **35.** Other commercial food service

OUTPUT-PREPARATION OF

( ) **36.** Meats, fish, and poultry
( ) **37.** Vegetables
( ) **38.** Soups, stews, and sauces
( ) **39.** Jams, jellies, and preserves
( ) **40.** Cereals
( ) **41.** Puddings and other desserts

WITH THIS AMOUNT OF SUPERVISION

( ) **42.** Under direct supervision
( ) **43.** With co-workers who share the responsibility
( ) **44.** With full responsibility for the task assigned

PREPARATION OF KETTLE

( ) **45.** Adding ingredients
( ) **46.** Adjusting temperature control

TIMES PROCESS

( ) **47.** 3 minutes
( ) **48.** 10 minutes
( ) **49.** 20 minutes
( ) **50.** 30 minutes

POST-COOKING PROCEDURES

( ) **51.** Turning off kettle
( ) **52.** Removing lid
( ) **53.** Draining liquid
( ) **54.** Removing food
( ) **55.** Washing kettle

DIRECTIONS (Task Sequence)	**CRITERIA**
The operator executes the following tasks:	*Each step is correct in terms of all the following:*
1. Prepares steam-jacketed kettle for cooking.	a. Selected the appropriate size and type of kettle if more than one was available in the kitchen. b. Preheated the kettle. c. Greased bottom and sides of kettle when called for in the recipe. d. Added the necessary amount of water when called for in the recipe. e. Placed the uncooked food in the kettle and closed lid as directed.
2. Regulates the cooking of the food in the steam-jacketed kettle.	a. Adjusted the kettle for cooking the given food at the temperature required in the recipe. b. Reduced steam for slow cooking when called for in the recipe. c. Timed the cooking process. d. Turned off steamer if not automatic at end of cooking process. Cooled rapidly when recipe calls for.
3. Removes the cooked food from the steam-jacketed kettle.	a. Lifted lid of kettle slowly and with caution. b. Used the method appropriate to food and equipment available. Example: Used the tangent drain for removing liquid foods. c. Placed food in appropriate serving container.
4. Cleans the steam-jacketed kettle.	a. Filled the kettle with warm water. b. Soaked if necessary and washed with warm water and soap using soft cloth, fiber brush or sponge. c. Rinsed with warm water. d. Cleaned the drain and rinsed thoroughly.

Setting a Table

CONDITIONS

PROTOTYPE

Given the assignment of setting a table on the patio for a 2-course (9) luncheon for four (3) persons, two of whom are children (5). The lawn table (19) will have placemats (32), napkins (34), forks (37), spoons (36), and knives (38). The student has not performed (47) the task previously but should be able to complete the task using a tray (29) in 10 minutes (46).

GIVEN THE FOLLOWING NUMBER OF PERSONS FOR A MEAL

( ) **1.** 1 person
( ) **2.** 2–3 persons
( ) **3.** 4–5 persons
( ) **4.** 6 or more

Age Classifications

( ) **5.** Children
( ) **6.** Adults
( ) **7.** Elderly

With the Meal Consisting of the Following Number of Courses

( ) **8.** One
( ) **9.** Two
( ) **10.** Three or more

With This Level of Familiarity

( ) **11.** New task
( ) **12.** Task performed occasionally
( ) **13.** Task usually performed

PURPOSE TO SET TABLE AT

( ) **14.** Counter top and stools
( ) **15.** Breakfast nook
( ) **16.** Dining or kitchen table and chairs
( ) **17.** TV trays
( ) **18.** Bedside table or tray
( ) **19.** Lawn table and chairs
( ) **20.** Other

LOCATION

( ) **21.** Kitchen
( ) **22.** Dining room
( ) **23.** Living room
( ) **24.** Family room
( ) **25.** Bedroom
( ) **26.** Patio or porch
( ) **27.** Other

USING THE FOLLOWING METHODS

( ) **28.** Carry by hand
( ) **29.** Carry on tray
( ) **30.** Push on cart
( ) **31.** Other

With the Following Table Appointments

( ) **32.** Placemats
( ) **33.** Tablecloth
( ) **34.** Napkins
( ) **35.** Centerpiece
( ) **36.** Spoons
( ) **37.** Forks
( ) **38.** Knives

With the Following Accompaniments

( ) **39.** Butter
( ) **40.** Jam or jelly
( ) **41.** Salt and pepper
( ) **42.** Sauces
( ) **43.** Relishes

WITH THE TASK BEING COMPLETED IN THE FOLLOWING TIME

( ) **44.** 3 minutes
( ) **45.** 5 minutes
( ) **46.** 10 minutes

ENABLING BEHAVIOR

( ) **47.** Limited
( ) **48.** Some
( ) **49.** Considerable

DIRECTIONS (Task Sequence)	**CRITERIA**
The homemaker sets the table by executing the following tasks:	*Each step is correct in terms of all the following:*
1. Determines what table appointments are necessary to serve the meal.	**a.** Checked menu to determine number of courses and types of food being served.
2. Assembles needed table appointments.	**a.** Selected table appointments that would be most adequate for meal from those available. **b.** Selected appointments that would be most suitable for place and surface where meal will be served. **c.** Selected appointments suitable to persons being served.
3. Moves table appointments to eating area.	**a.** Assembled table appointments in manner that facilitated moving to eating area and setting covers. **b.** Used most convenient method available to move table appointments to eating area.
4. Sets each cover with table appointments needed for meal.	**a.** Arranged necessary table appointments at each cover. **b.** Maintained uniform pattern for each cover.
5. Places accompaniments on eating surface within reach of a cover.	**a.** Placed additional items close to cover of a person who would be able to pass them. **b.** Arranged on table in attractive manner.
6. Places seats at each cover.	**a.** Seats were placed exactly in front of each cover if table and chairs were used. **b.** Seats were placed at distance from table convenient for seating.

Supervising and Instructing a Child in Performing Chores

PROTOTYPE

Accepting the responsibility of instructing 3 (7) normal (14) children 9 (3), 11, and 12 (4) years of age who have limited experience (10), weak (21) motivation and indifferent attitude (17) toward household chores, in performing those chores (12) previously performed by deceased mother, the homemaker gives complete oral (10) directions for chores to be completed and demonstrates processes; points out benefits to children of performing chore; checks progress and assists as necessary (31); and praises aspects of chore which are well done.

CONDITIONS

GIVEN A CHILD OF THE FOLLOWING AGE

( ) **1.** 4–5 years
( ) **2.** 6–7 years
( ) **3.** 8–10 years
( ) **4.** 11–12 years
( ) **5.** 13 and over

With This Many Children to Supervise and Instruct

( ) **6.** 1 child
( ) **7.** 2–3 children
( ) **8.** 4–6 children
( ) **9.** 7 or more children

Directions Given

( ) **10.** Orally
( ) **11.** Written

With Child's Prior Experience in Performing Chore Being

( ) **12.** New task, never done before
( ) **13.** Some
( ) **14.** Considerable

With Child's Present Physical and Mental Condition Being

( ) **15.** Handicapped
( ) **16.** Normal
( ) **17.** Excellent

With Child's Attitude Toward Chores Being

( ) **18.** Pleasant and favorable
( ) **19.** Neutral or indifferent
( ) **20.** Unpleasant

With Child's Incentive to Perform Chore Being

( ) **21.** Strong
( ) **22.** Moderate
( ) **23.** Weak

WITH EQUIPMENT TO PERFORM CHORE BEING

( ) **24.** Inadequate
( ) **25.** Adequate

WITH THE CHORE TO BE COMPLETED IN THE FOLLOWING TIME

( ) **26.** 10 minutes
( ) **27.** 15 minutes
( ) **28.** 30 minutes
( ) **29.** Extended

WORK QUALITY

( ) **30.** Constantly supervised
( ) **31.** Little supervision

DIRECTIONS (Task Sequence)	**CRITERIA**
The homemaker supervises and instructs a child in performing chores by executing the following tasks:	*Each step is correct in terms of all the following:*
1. Makes successful approach to child.	**a.** Smiled and made appropriate greeting. **b.** Gained child's undivided attention.
2. Determines child's attitude.	**a.** Chatted with child about activities.
3. Outlines chore to child.	**a.** Had full knowledge of how chore might be performed. **b.** Gave complete information needed for completing chore. **c.** Involved more than one of child's senses in explaining chore.
4. Overcomes resistance or objections.	**a.** Pointed out benefits to child of performing chore. **b.** Emphasized need for doing chore. **c.** Suggested alternative ways of performing chore or alternative chores.
5. Answers questions concerning chore.	**a.** Restated directions or instructions in another way—if needed. **b.** Answered all questions cheerfully and completely.
6. Terminates discussion of chore.	**a.** Verbally told child to begin chore. **b.** Suggested to child that he could complete chore within certain time period.
7. Interacts with child during process of completing chore.	**a.** Oversaw work of child if he had little or no experience in performing chore. **b.** Checked progress if chore was long and involved. **c.** Assisted child with task, if having difficulty.
8. Acknowledges completion of chore by child.	**a.** Verbally acknowledged completion of chore. **b.** Praised child for aspects of chore well done. **c.** Suggested new activity.

CONDITIONS Telling or Reading Stories to Children

PROTOTYPE

The homemaker is to tell stories to three children (5) ranging in age from three (1) to five years (2) with normal mental capacity for their ages (9). Five (20) books are available so she lets children select a book since they have had many stories read to them previously (13). They all sit on the rug (16) in front of the bed (17) as she tells the story. The oldest child is familiar (22) with the story and likes to tell parts (26) of it, which the homemaker permits. When the story is finished, the children are ready for their nap (30).

GIVEN CHILDREN OF THE FOLLOWING AGES

( ) **1.** 2–3 years
( ) **2.** 4–5 years
( ) **3.** 6–7 years
( ) **4.** 8 and over

With This Number of Children

( ) **5.** 1–3
( ) **6.** 4–6
( ) **7.** 7 or more

With Children's Mental Capacity Being

( ) **8.** Below normal age
( ) **9.** Normal age
( ) **10.** Above normal age

With Children's Prior Experience with Story Time Being

( ) **11.** Limited
( ) **12.** Some
( ) **13.** Considerable

WITH THE FOLLOWING EQUIPMENT

( ) **14.** Tables and chairs
( ) **15.** Sofa
( ) **16.** Rug on floor
( ) **17.** Bed
( ) **18.** Other

WITH THIS NUMBER OF STORYBOOKS AVAILABLE

( ) **19.** One
( ) **20.** Few 2–5
( ) **21.** Many

With Children

( ) **22.** Knowing story completely
( ) **23.** Knowing story partly
( ) **24.** Unfamiliar with story

STORY TOLD

( ) **25.** Completely by homemaker
( ) **26.** Partly by children
( ) **27.** Mostly by children

WHEN STORY IS FINISHED

( ) **28.** Another story is told
( ) **29.** Children play
( ) **30.** Children nap

DIRECTIONS (Task Sequence)	CRITERIA
The homemaker tells or reads stories to children by executing the following tasks:	*Each step is correct in terms of all the following:*
1. Selects storybooks or stories.	**a.** Chose books and/or stories containing appropriate vocabulary for age level of children. **b.** Chose books and/or stories within range of children's experiences. **c.** Chose books containing pictures that will be meaningful to children. **d.** Allowed children to help select stories.
2. Familiarizes self with stories.	**a.** Read through stories until familiar if telling. **b.** Read story till able to read to children with ease.
3. Helps children get ready for stories.	**a.** Verbally announced story time to children. **b.** Assisted children in finding comfortable position to see and hear.
4. Confirms adequacy of environment.	**a.** Had books handy that were read. **b.** Had adequate light for story reading. **c.** Children were all satisfied and comfortable.
5. Tells or reads the stories to children.	**a.** Maintained eye contact with children when reading and telling stories. **b.** Encouraged comments of children on stories. **c.** Asked children to tell parts of stories if stories were familiar ones.
6. Terminates storytelling or reading period.	**a.** Watched children for signs of loss of attention. **b.** Verbally ended story time. **c.** Introduced new activity.

Eliciting Information for Altering and Repairing Clothing

PROTOTYPE

The operator in a dry-cleaning store (1) accepts a woolen (17) dress (9) that is too short and needs lengthening (12a). She fits the dress (30) to the customer and measures it for the new length, writing down the measurements (32) following the customer's suggestions (34). She tells the customer the dress will be ready within a week (43) and also tells her the cost of the alteration (40).

CONDITIONS

SECURE INFORMATION FROM

( ) **1.** Manager of dry cleaner or laundry
( ) **2.** Salesperson in retail store
( ) **3.** Individual owner or purchaser of garment
( ) **4.** Homemaker securing services for other members of family

SECURE INFORMATION REGARDING JOB

Garment

( ) **5.** Trousers
( ) **6.** Jacket
( ) **7.** Coat
( ) **8.** Shirt or blouse
( ) **9.** Dress
( ) **10.** Skirt
( ) **11.** Other

Repairs or Alteration to Be Done

( ) **12.** Adjusting length
    a. Hem of skirt or coat
    b. Length of trousers
    c. Length of sleeve
    d. Length of pocket
( ) **13.** Fitting
( ) **14.** Mending tears or holes
( ) **15.** Sewing on buttons
( ) **16.** Repairing or replacing zipper

Fabric

( ) **17.** Wool
( ) **18.** Cotton
( ) **19.** Linen
( ) **20.** Acetate
( ) **21.** Rayon
( ) **22.** Acrylic
( ) **23.** Polyester
( ) **24.** Blend
( ) **25.** Other

Specifications

( ) **26.** Measurement of alteration
( ) **27.** Size and type of zipper, buttons, or buttonholes
( ) **28.** Type of seam finish
( ) **29.** Desired standard of workmanship

USING FOLLOWING METHODS

( ) **30.** Fits garment and marks with pins or chalk
( ) **31.** Takes body measurements; records
( ) **32.** Records measurements supplied by client
( ) **33.** Examines garment; records work to be done
( ) **34.** Records directions supplied by client

WITH REPAIR OR ALTERATION TO BE DONE BY

( ) **35.** Elicitor
( ) **36.** Workers supervised by elicitor
( ) **37.** Workers with whom elicitor has no direct contact

WITH SERVICES TO BE PAID BY

( ) **38.** Retail store
( ) **39.** Dry cleaner or launderer
( ) **40.** By client
( ) **41.** By liable person (restaurant, insurance company)

WITH TIME FOR COMPLETION

( ) **42.** While client waits
( ) **43.** Within specified time
( ) **44.** When possible within schedule of workers

DIRECTIONS (Task Sequence)	CRITERIA
Operator executes the following tasks:	*Each step is correct in terms of all the following:*
1. Secures information concerning alteration or repair to be done.	a. Asked questions in manner to secure complete information.
2. Records measurements, types of fabric, and other specifications for the job.	a. Secured and recorded accurately exact measurements needed. b. Recorded all information such as type of fabric; kind of thread, zipper or buttons to be used; and placement of buttons.
3. Identifies the client's standards of fit, personal taste, and desired level of workmanship.	a. Formulated questions to determine personal standards and desires. b. Accepted ideas and suggestions of client. c. Recorded all information regarding personal standards, tastes, and desires.
4. Makes agreement with client or contractor concerning cost and time and place of delivery.	a. Clearly stated time (and date) of completion and cost. b. Secured client's agreement to time and cost. c. Gave client written statement of job to be done, time to be completed, and cost.

Performance Goals for Technical Education

Technical education needs to be a mirror of technology in industry. In industry, emphasis is on performance to an acceptable standard. Industry in more and more cases has reached the point of carefully delineating, positively identifying, and clearly expressing short-term and long-range goals in terms of expected outcomes. Success in meeting the performance goals is the price of survival in a rapidly developing technological society that is highly competitive. In technical education, also, the emphasis in learning needs performance orientation.

A performance goal is a specific and explicit description of an educational objective, with particular emphasis on the action performed on the payroll job.

A performance goal describes:

1. Exactly what students can do when demonstrating achievement.
2. How teachers can recognize the students' achievement.

The criteria of expected outcomes need to be expressed in very specific terms. In a recent book, Robert F. Mager[1] calls performance goals educational intents. He said ". . . In the absence of clear knowledge of what it is you intend to achieve, in the absence of some student prerogative, we squander a great deal of time, both student time and instructor time, and we squander a great deal of money."

Actually there are three steps in the writing of performance goals using the taxonomic approach:

1. Identifying the conditions under which the goal could be achieved.
2. Listing the main tasks in order of performance.
3. Stating the elements of the criteria in sufficient detail to permit verification of successful performance of the tasks. The criteria reflect quality or quantity of performance of tasks in terms significant to validate achievement of the goals. The criteria are best expressed in the past tense.

Performance goals provide the essential degree of specificity necessary for determining the performance of the learner required prior to completion of the learning activity. Lack of specificity has been one of the major criticisms of educational objectives as written by many educators.

Careful choice of the introductory action verb provides considerable assistance in approaching the problem of translating broad objectives into performance goals. Some words that are helpful as introductory verbs are:

adjust
calculate
inspect
analyze
diagnose
locate
assemble
identify
select

A reference source of performance goals for the major tasks or jobs (or operations) analyzed can be cataloged by considering and listing the various conditions under which the task is likely to be performed. The conditions should be realistic rather than an attempt to provide an exhaustive list. The criteria must be in harmony with the demands of industry in the technology considered.

Performance goals have one main purpose—more effective instruction. Instruction geared to employment needs must be effective. Validated instruction is more likely if analysis of the occupation and curricula is made and if analysis is translated into essential performance goals, which in turn can be evaluated in terms of desired outcomes. Only goals that can be evaluated provide the knowledge of fulfillment essential to an instructional system adequate to prepare students for an effective role in a complex and rapidly changing technology.

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[1] Aerospace Education Foundation. *Technology and Innovation in Education.* New York: Frederick A. Praeger, 1968.

The cataloging of educational intents into validated goals of performance provides a structured approach to education and training for technicians and technology which is more likely to achieve the desired results. It relates in positive terms the conditions and the criteria of the tasks through an identified description which must be consistent with the needs of payroll jobs. Performance goals geared to the training needs result in more effective educational programs and achievement that is specifically defined so that it can be readily evaluated. The systems approach to technician education is enhanced through the use of realistic and relevant performance goals!

CONDITIONS

Eliciting Information

PROTOTYPE

Given the problem of completing a written failure report (48) with little supervision (50) eliciting information from a customer (29) who complained of a defective product. A personal interview (37) was used with the aid of a tape recorder (43) to complete the report in order to aid in the metallurgical analysis of the failure and identification of the problem (25) due to the failure of a steel part under dynamic loads at atmospheric temperature (10). This was the second experience of the person eliciting (55) the information under approximately the same kind of conditions.

GIVEN THE FOLLOWING ELICITING ASSIGNMENT IN SECURING INFORMATION ABOUT THE FAILURE AT ATMOSPHERIC TEMPERATURE OF

( ) **1.** Steel part under static loads
( ) **2.** Cast iron part under static loads
( ) **3.** Copper part under static loads
( ) **4.** Aluminum part under static loads
( ) **5.** White metal part under static loads
( ) **6.** Plastics part under static loads
( ) **7.** Rubber part under static loads
( ) **8.** Wood part under static loads
( ) **9.** Concrete part under static loads
( ) **10.** Steel part under dynamic loads
( ) **11.** Cast iron part under dynamic loads
( ) **12.** Copper part under dynamic loads
( ) **13.** Aluminum part under dynamic loads
( ) **14.** White metal part under dynamic loads
( ) **15.** Plastics part under dynamic loads
( ) **16.** Rubber part under dynamic loads
( ) **17.** Wood part under dynamic loads
( ) **18.** Concrete part under dynamic loads
( ) **19.** Other

FOR THE PURPOSE OF

( ) **20.** Building case history of product failure
( ) **21.** Supporting contention justifying design modification
( ) **22.** Supporting evidence of excess loading by user
( ) **23.** Supporting material modification of product
( ) **24.** Gathering evidence in case of legal action
( ) **25.** Aiding in metallurgical analysis of failure and identification of problem
( ) **26.** Other

DRAWN FROM THE FOLLOWING SOURCES

( ) **27.** Test engineer in same firm
( ) **28.** Test technician in same firm
( ) **29.** Customer using product
( ) **30.** Vendor distributing product
( ) **31.** Consultant testing product
( ) **32.** Sub-contractor making product
( ) **33.** Sub-contractor using product
( ) **34.** Superior
( ) **35.** Other

USING THE FOLLOWING METHODS

( ) **36.** Oral questioning without a failure report form
( ) **37.** Oral questioning to complete a failure report form
( ) **38.** Written report by individual experiencing failure
( ) **39.** Written report by associate of individual experiencing failure
( ) **40.** Written report by user of the product
( ) **41.** Other

And the Following Equipment for Eliciting Information

( ) **42.** Telephone
( ) **43.** Personal contact and tape recorder
( ) **44.** Letter or other written communication
( ) **45.** None
( ) **46.** Other

OUTPUT

( ) **47.** Oral failure report
( ) **48.** Written failure report
( ) **49.** Other

QUALITY

( ) **50.** Completed with little or no supervision in detail required by problem
( ) **51.** Completed only with much assistance in detail as required by problem
( ) **52.** Other

ENABLING BEHAVIOR (PREVIOUS EXPERIENCE)

( ) **53.** No previous experience in eliciting information relative to metallurgical failures
( ) **54.** Has elicited similar information once previously
( ) **55.** Has elicited similar information two to ten times previously
( ) **56.** Other

DIRECTIONS (Task Sequence)	**CRITERIA**
The elicitor executes the assignment in the following steps. (The sequence of these steps varies from time to time. It is possible that some will occur simultaneously.)	*Each step is correct in terms of all the following:*
1. Establishes good rapport with customer.	**a.** The customer was greeted in a friendly manner. **b.** Genuine interest was shown in the customer's problem.
2. Questions customer concerning problem.	**a.** Questions were asked to identify the events relative to the failure of the part. **b.** Significant responses were followed with other related questions.
3. Records conversation on tape.	**a.** Reason for use of tape recorder was explained as a tool for additional study of problem.
4. Writes responses on form.	**a.** Customer's responses were recorded correctly and in detail. **b.** Important statements were read back to the customer for verification.
5. Seeks other information relative to problem.	**a.** Customer was encouraged to discuss other elements of problem. **b.** Customer was encouraged to explain use made of machine at the time of failure.
6. Permits customer to review report.	**a.** Customer was given ample time to read the completed report.
7. Secures signature of customer to failure report.	**a.** Customer was asked to sign the failure report.
8. Leaves customer with feeling that fair consideration will be given to the problem.	**a.** Customer was satisfied with the treatment received. **b.** Customer was assured that proper adjustment was going to be made.

Operating a Machine in Turning a Straight Shaft

CONDITIONS

PROTOTYPE

Given a straight shaft to turn with smooth finish (3) to manufacturing tolerances of diameter of 1.000" (98) plus or minus 0.001" (117) with a surface finish of 125–64 microinches (138) having a finished length of 7.000" (111), this operation, which was previously performed once during the last month (148), is to be executed on material of S.A.E. 1015 (27) soft steel using a 18–4–2 high speed steel (86) tool bit; the order calls for one piece-part (22) to be machined on a toolroom lathe (59) between solid, dead centers (76) in a regular turning (44) sequence in the school (54) during a period of 3–4 hours (144).

GIVEN THE FOLLOWING ASSIGNMENT TO TURN

( ) **1.** Straight shaft with rough finish to manufacturing tolerances
( ) **2.** Straight shaft with rough finish to commercial tolerances
( ) **3.** Straight shaft with smooth finish to manufacturing tolerances
( ) **4.** Straight shaft with smooth finish to commercial tolerances
( ) **5.** Straight shaft with smooth finish to high precision
( ) **6.** Straight shaft to shoulder with rough finish to manufacturing tolerances
( ) **7.** Straight shaft to shoulder with rough finish to commercial tolerances
( ) **8.** Straight shaft to shoulder with smooth finish to manufacturing tolerances
( ) **9.** Straight shaft to shoulder with smooth finish to commercial tolerances
( ) **10.** Straight shaft to shoulder with smooth finish to high precision
( ) **11.** Tapered shaft with rough finish to manufacturing tolerances
( ) **12.** Tapered shaft with rough finish to commercial tolerances
( ) **13.** Tapered shaft with smooth finish to manufacturing tolerances
( ) **14.** Tapered shaft with smooth finish to commercial tolerances
( ) **15.** Tapered shaft with smooth finish to high precision
( ) **16.** Tapered shaft to shoulder with rough finish to manufacturing tolerances
( ) **17.** Tapered shaft to shoulder with rough finish to commercial tolerances
( ) **18.** Tapered shaft to shoulder with smooth finish to manufacturing tolerances
( ) **19.** Tapered shaft to shoulder with smooth finish to commercial tolerances
( ) **20.** Tapered shaft to shoulder with smooth finish to high precision
( ) **21.** Other

With the Following Number of Piece-Parts

( ) **22.** 1
( ) **23.** 2–5
( ) **24.** 6–25
( ) **25.** 26–50
( ) **26.** Other

To Be Machined of

( ) **27.** Steel, soft, S.A.E. 1015
( ) **28.** Steel, about 190 Brinell
( ) **29.** Steel, about 250 Brinell
( ) **30.** Steel, about 350 Brinell
( ) **31.** Steel, cast, 0.60 C. 0.60 Mn
( ) **32.** Steel, stainless, 460 Brinell
( ) **33.** Steel, stainless 18–6
( ) **34.** Cast iron, malleable
( ) **35.** Cast iron, copper silicon
( ) **36.** Brass, common yellow
( ) **37.** Beryllium bronze, hardened
( ) **38.** Aluminum, die-cast (94 Al 6 Si)
( ) **39.** Armature copper
( ) **40.** Electrode carbon
( ) **41.** Bakelite, Durez, etc.
( ) **42.** Teflon plastics
( ) **43.** Other

FOR THE PURPOSE OF

( ) **44.** Turning
( ) **45.** Facing
( ) **46.** Boring
( ) **47.** Drilling
( ) **48.** Centering
( ) **49.** Reaming
( ) **50.** Knurling
( ) **51.** Parting
( ) **52.** Chamfering
( ) **53.** Other

SOURCE (LOCATION)

( ) **54.** School shop
( ) **55.** Cooperating industrial plant
( ) **56.** Other

ON THIS TYPE OF MACHINE TOOL

( ) **57.** Engine lathe
( ) **58.** Bench lathe
( ) **59.** Toolroom lathe
( ) **60.** Crankshaft lathe
( ) **61.** Car-wheel lathe
( ) **62.** Cap lathe
( ) **63.** Multicut lathe
( ) **64.** Duplicating lathe
( ) **65.** Ram-type turret lathe
( ) **66.** Saddle-type turret lathe
( ) **67.** Automatic horizontal turret lathe
( ) **68.** Vertical turret lathe
( ) **69.** Automatic, vertical multistation lathe
( ) **70.** Tracer slide duplicating lathe
( ) **71.** Hand screw machine
( ) **72.** Single-spindle automatic screw machine
( ) **73.** Multispindle automatic screw machine
( ) **74.** Automatic bar machine
( ) **75.** Other

Work Held

( ) **76.** Between solid, dead centers
( ) **77.** Between solid dead center and ball bearing live tailstock center
( ) **78.** Between live headstock center and ball bearing tailstock center
( ) **79.** In a four-jaw independent chuck
( ) **80.** In a three-jaw universal chuck
( ) **81.** In a six-jaw universal chuck
( ) **82.** In steel collets
( ) **83.** In a Jacobs spindle-nose lathe collet chuck
( ) **84.** Other

Using a Cutting Tool Bit of

( ) **85.** High speed steel, 18–4–4
( ) **86.** High speed steel, 18–4–2
( ) **87.** High speed steel, 18–4–1
( ) **88.** High speed steel, tungsten-cobalt
( ) **89.** High speed steel, chrome-molybdenum
( ) **90.** Waynes Stellite
( ) **91.** Cemented carbide
( ) **92.** Ceramic
( ) **93.** Other

OF THE FOLLOWING FINISHED DIAMETER IN INCHES

( ) **94.** 0.04–0.12
( ) **95.** 0.12–0.24
( ) **96.** 0.24–0.40
( ) **97.** 0.40–0.71
( ) **98.** 0.71–1.19
( ) **99.** 1.19–1.97
( ) **100.** 1.97–3.15
( ) **101.** 3.15–4.73
( ) **102.** 4.73–7.09
( ) **103.** Other

DIRECTIONS (Task Sequence)	**CRITERIA**
The operator executes the task in the following steps:	*Each step is correct in terms of all the following:*
1. Selects stock. Identifies S.A.E. code or uses spark test. Checks for size and length.	**a.** Stock of S.A.E. 1015 soft steel was procured. **b.** Diameter was determined to be adequate for purpose. **c.** Length was determined to be adequate for purpose.
2. Cuts length of stock (if necessary). Positions stock straight in saw vise.	**a.** Length was $\frac{1}{32}$" over finish dimension. **b.** Rough edge of saw cut was filed off.
3. Centers stock. Checks that layout fluid is dry before scribing lines. Makes deep center punch mark. Drills center hole to $\frac{2}{3}$ length of countersink.	**a.** Ends of stock were coated with layout fluid. **b.** Two lines intersecting at 90° were scribed with scriber and center head with blade. **c.** Scribed lines were checked by turning over center head. **d.** Ends were center punched at point of intersection of lines. **e.** Center holes were drilled in each end of stock with Number 3 center drill, using center drilling machine.
4. Inspects lathe for operating condition. Checks points of centers to see if smooth and true. Checks all moving parts of machine to see if free.	**a.** Centers of lathe were checked for operating condition. **b.** Driving plate was in place on spindle nose. **c.** Lathe was inspected for satisfactory operating condition.
5. Inserts tool for turning. Aligns tool at center height using point of tailstock center. Checks clearance angle of tool when in the tool holder.	**a.** Turning tool was mounted in tool holder. **b.** Tool holder was mounted in tool post of compound rest at center height. **c.** Tool was set to point 30° towards tailstock. **d.** Tool was set with minimum overhang. **e.** Nut of tool post was securely tightened.
6. Adjusts speed and feed. Calculates speed and feed according to formula.	**a.** R.P.M. of headstock was adjusted for tool bit materials and kind of stock turned. **b.** Feed was set for kind of tool bit material and kind of stock turned.
7. Lubricates lathe. Adds oil if reservoir is low.	**a.** Lathe was oiled. **b.** Level of oil in reservoir was checked.
8. Lubricates work piece. Checks center lubricant for uniform consistency.	**a.** White lead and oil was mixed as center lubricant. **b.** Center lubricant was placed in center holes.
9. Takes safety precautions.	**a.** Safety glasses were in position. **b.** Sleeves were rolled above elbows. **c.** Necktie was removed.
10. Starts machining process. Excessive pressure on work centers produces heat which can ruin center holes.	**a.** Motor of lathe was started. **b.** Cross slide was adjusted to pick up roughing cut. **c.** Automatic feed was engaged. **d.** Trial cut was taken. **e.** Lathe was stopped. **f.** Diameter of stock was checked for dimension. **g.** Cross slide was adjusted, if necessary. **h.** Lathe was started again.

(Continued on pages 88 and 89)

CONDITIONS

Operating a Machine in Turning a Straight Shaft

Of the Following Finished Length in Inches
( ) **104.** 0.50–0.99
( ) **105.** 1.00–1.99
( ) **106.** 2.00–2.99
( ) **107.** 3.00–3.99
( ) **108.** 4.00–4.99
( ) **109.** 5.00–5.99
( ) **110.** 6.00–6.99
( ) **111.** 7.00–7.99
( ) **112.** 8.00–8.99
( ) **113.** 9.00–9.99
( ) **114.** 10.00 and over
( ) **115.** Other

WITH TOLERANCE IN INCHES OF
( ) **116.** Plus or minus 0.0005
( ) **117.** Plus or minus 0.0010
( ) **118.** Plus or minus 0.0015
( ) **119.** Plus or minus 0.0020
( ) **120.** Plus or minus 0.0025
( ) **121.** Plus or minus 0.0030
( ) **122.** Plus or minus 0.0035
( ) **123.** Plus or minus 0.0040
( ) **124.** Plus or minus 0.0045
( ) **125.** Plus or minus 0.0050
( ) **126.** Plus only 0.0005
( ) **127.** Plus only 0.0010
( ) **128.** Plus only 0.0015
( ) **129.** Plus only 0.0020
( ) **130.** Plus only 0.0025
( ) **131.** Minus only 0.0010
( ) **132.** Minus only 0.0015
( ) **133.** Minus only 0.0020
( ) **134.** Minus only 0.0025
( ) **135.** Other

With a Surface Finish of
( ) **136.** 500–251 Microinches
( ) **137.** 250–126 Microinches
( ) **138.** 125–64 Microinches
( ) **139.** 63–33 Microinches
( ) **140.** 32–16 Microinches
( ) **141.** Other

COMPLETED IN THE FOLLOWING TIME
( ) **142.** Less than two hours
( ) **143.** Two to three hours
( ) **144.** Three to four hours
( ) **145.** Four to five hours
( ) **146.** Other

ENABLING BEHAVIOR (PREVIOUS EXPERIENCE)
( ) **147.** New operation, never done before
( ) **148.** Operation previously performed once during last month
( ) **149.** Operation previously performed two to five times during last month
( ) **150.** Operation previously performed more than five times during last month
( ) **151.** Operation previously performed once prior to last month
( ) **152.** Operation previously performed two to five times prior to last month
( ) **153.** Operation previously performed more than five times prior to last month
( ) **154.** Other

DIRECTIONS (Task Sequence)	CRITERIA
11. Roughs machine stock. Stops rotation of work before measuring diameter. Loosens tailstock clamping nut before correcting alignment of centers.	a. Rough machining process was continued; lathe was stopped and diameter was checked with necessary adjustments made. b. Stock was checked for taper as well as diameter. c. Stock was machined to .015" over final diameter.
12. Finishes machine stock. To secure smoother finish, increases speed, reduces feed and depth of cut. Removes burr from end of workpiece.	a. Speed and feed were set for finishing. b. Tool was checked to ascertain suitable condition for finishing. c. Semi-finishing cut of 0.010" was taken. d. Work was checked for diameter and taper. e. Cross slide was adjusted for final cut. f. Lathe was started and finish cut completed. g. Diameter of stock was checked for correct dimension.

CONDITIONS

Editing an Operating Manual and Parts List

PROTOTYPE

Given the problem of editing an operating manual and parts list (8) within a cooperating industrial firm (53) of unspecified length (35) in handwritten and typewritten form (39) with implied objectives (50) to conform to the style and symbols of the established sequence of company handbooks and manuals (58) with special attention given to conformity to specifications of format (67) and factual accuracy (75) of the copy, maintaining the standard of performance customarily (90) given in this company to this kind of task, partially editing for publication (87), time to be "reasonable" (94) but unspecified, even though this is a new task (99) which has never been done by this person before.

GIVEN THE FOLLOWING MATERIAL TO BE EDITED

( ) **1.** Engineering drawings
( ) **2.** Engineering specifications
( ) **3.** Engineering drawings and specifications
( ) **4.** Performance data
( ) **5.** Literature on similar equipment
( ) **6.** Operating manual
( ) **7.** Parts list
( ) **8.** Operating manual and parts list
( ) **9.** Maintenance manual
( ) **10.** Maintenance manual and parts list
( ) **11.** Maintenance manual, operating manual, and parts list
( ) **12.** Proposal for government contract
( ) **13.** Proposal for subcontract under government sponsorship
( ) **14.** Proposal for contract with other industrial firm
( ) **15.** Proposal for contract with other division of the industrial firm
( ) **16.** Progress report of project
( ) **17.** Final report of project
( ) **18.** Technical content of promotional copy
( ) **19.** Technical content of legal document
( ) **20.** Diagrams
( ) **21.** Blueprints
( ) **22.** Flowcharts
( ) **23.** Drawings
( ) **24.** "Part" charts
( ) **25.** Diagrams and blueprints
( ) **26.** Diagrams, blueprints, and flowcharts
( ) **27.** Flowcharts and "Part" charts
( ) **28.** Technical content of tapes (silent)
( ) **29.** Technical content of video tapes
( ) **30.** Technical content of charts
( ) **31.** Technical content of slides
( ) **32.** Technical content of filmstrips
( ) **33.** Other

Of the Following Length

( ) **34.** Specified
( ) **35.** Unspecified

In the Following Form

( ) **36.** Handwriting
( ) **37.** Typewriting
( ) **38.** Print
( ) **39.** Handwriting and typewriting
( ) **40.** Typewriting and print
( ) **41.** Symbolic language
( ) **42.** Graphic form
( ) **43.** Symbolic language and graphic form
( ) **44.** Tape recording (silent)
( ) **45.** Video tape recording
( ) **46.** Filmstrip
( ) **47.** Slides
( ) **48.** Other

TO BE MADE TO MEET THE FOLLOWING OBJECTIVES

( ) **49.** Specified
( ) **50.** Implied
( ) **51.** Unspecified

SOURCE (LOCATION)

( ) **52.** School
( ) **53.** Cooperating industrial firm
( ) **54.** Cooperating local dealer
( ) **55.** Other

TO BE MADE TO CONFORM TO THE FOLLOWING STANDARDS (AS EXPRESSED IN AUTHORITATIVE REFERENCE WORKS)

( ) **56.** Style manual on procedures and format
( ) **57.** Subject-matter references (for matters of content, terminology, methodology, etc.)
( ) **58.** Handbooks and manuals with established style and symbols
( ) **59.** References on grammar, syntax, word usage, and idiom
( ) **60.** Spelling references (dictionary, word list, style sheet)
( ) **61.** Style manuals and subject-matter references
( ) **62.** Style manuals and handbooks
( ) **63.** Style manuals and references on grammar
( ) **64.** Style manuals and references on grammar and spelling
( ) **65.** Other

To Be Made to Conform to Specifications Established for This Particular Assignment

( ) **66.** Length
( ) **67.** Format (as indicated in special layouts, samples, etc.)
( ) **68.** Other

With This Degree of Latitude

( ) **69.** Correct the copy for spelling
( ) **70.** Correct the copy for punctuation, capitalization, etc.
( ) **71.** Correct the copy for spelling, punctuation, capitalization, etc.
( ) **72.** Correct the copy for grammar, syntax, and sentence structure
( ) **73.** Correct the copy for word usage and idiom
( ) **74.** Correct the copy for intelligent paragraphing
( ) **75.** Correct the copy for factual accuracy
( ) **76.** Correct the copy for coherence
( ) **77.** Revise for greater clarity, smoother flow, better control of tone (but do not change organization or meaning)
( ) **78.** Revise for more logical or more effective organization (but do not change the meaning)
( ) **79.** Revise so that meaning conforms to a particular point of view, policy, or objective
( ) **80.** Revise so that material fits a particular length
( ) **81.** Revise so that material fits a particular format
( ) **82.** Correct graphic content for organization and breakdown
( ) **83.** Correct diagrams and flowcharts for relationships
( ) **84.** Correct blueprints for dimensions and tolerances
( ) **85.** Other

OUTPUT

( ) **86.** Edited and ready for publication
( ) **87.** Partially edited but needing further refinement prior to publication
( ) **88.** Other

WITH THIS LEVEL OF QUALITY

( ) **89.** "Do what you can on a one-time read through"; "hit the high spots only"; "fast-and-dirty"
( ) **90.** Standard performance customarily given in this company to this kind of task
( ) **91.** Higher quality than usual
( ) **92.** "Perfection"
( ) **93.** Other

AND WITH THIS ALLOWANCE OF TIME

( ) **94.** "Reasonable" but unspecified
( ) **95.** "Rush" but unspecified
( ) **96.** Specified
( ) **97.** Unlimited
( ) **98.** Other

AND THE LEVEL OF TASK FAMILIARITY BEING

( ) **99.** New task, never done before
( ) **100.** Task done once before
( ) **101.** Task done two-five times before
( ) **102.** Task done many times previously
( ) **103.** Task done regularly, constantly
( ) **104.** Other

DIRECTIONS (Task Sequence)	**CRITERIA**
The editor executes the assignment in the following steps:	*Each step is correct in terms of all the following:*
1. Determines that material is in a form suitable for editing.	a. The material was reviewed to determine that it was in proper form for editing. b. The material was reviewed to ascertain whether or not all principal components were present; any missing elements were noted. c. The material was surveyed to determine whether or not treatment seemed adequately comprehensive.
2. Confirms editorial responsibilities and procedures.	a. The material was surveyed for editorial needs and problems. b. Editorial responsibilities and procedures (as expressed by the latitudes, the expected quality of performance, and other stipulated conditions) were reviewed in light of editorial needs and problems; these responsibilities and procedures were confirmed if adequate, or modified if not adequate. c. The authoritative reference works specified in the assignment were obtained and made conveniently available.
3. Edits the material for matters of content.	a. The material was examined for accuracy of facts. b. The material was examined for adequacy of coverage. c. The material was examined for correctness of method. d. The material was examined for balance and proportion in treatment. e. The material was examined for coherence of meaning. f. The material was examined for expression of information geared to the level of the readers' technical understanding.
4. Edits the material for matters of organization.	a. The material was examined to verify that the components were arranged in a logical and effective sequence. Modifications of arrangements were made if necessary. b. The material was examined to verify that the arrangement of the components was consistent with the established sequence of manuals as to style and symbols. c. Headings and other devices that identify the pattern of organization were carefully examined and were confirmed as appropriate. Modifications were made if necessary. d. Blueprints and diagrams were checked for conformance with established patterns of organization. e. Consistency of tabular data with previously set standards of organization was determined. Corrections were made if needed.
5. Edits the material for format and other technical characteristics.	a. The material was examined in light of the desired format, and modified as necessary. b. The material was examined to verify that the format of the components was consistent with the established sequence of manuals of the firm as to style and symbols. c. The material was examined in light of established specifications, and modified as necessary. d. Blueprints, diagrams, and other flowcharts were checked for conformance with established symbols and format. e. Consistency of tabular data with previously set format was determined. Corrections were made if needed.
6. Edits the material for style and tone.	a. The material was examined to confirm that the meaning was expressed clearly and precisely. Modifications were made if necessary. b. The material was examined to confirm that the wording flowed smoothly and read easily. Modifications were made if necessary. c. The material was examined to confirm that the tone was appropriate. Modifications were made if necessary.
7. Notes errors in material as to grammar, idiom, spelling, and mechanics of style.	a. Notation was made of sentences that were not structurally complete, grammatically correct, or properly punctuated. A memo was written covering these items. b. Idiomatical errors detected were recorded. A memo was written covering these items. c. Errors detected in spelling, capitalization, hyphenation, number expression, etc., were noted. A memo was written covering these items.
8. Transmits the material to the appropriate person.	a. Edited material was submitted to the appropriate person for resolution of problems or queries and, if necessary, for reworking of the material. b. Edited material was submitted to appropriate person for approval; all "objective" aspects of the editing conformed to the established standards and specifications; all "subjective" aspects of the editing satisfied the person who was to approve the work.

Compiling Information for a Technical Progress Report

CONDITIONS

PROTOTYPE

Given the problem of compiling information of the performance data (3) of an experimental model, data to be organized according to subject order (19), and reported in manuscript (87) form for a technical progress report (23), the data is to be drawn from records and reports (58) and should be accomplished during a six-hour period (100) with little assistance (94) as this type of task has been completed once (104) before, all details available within the department (62) are to be included, and all necessary equipment is available (74).

GIVEN THE FOLLOWING COMPILING ASSIGNMENT

( ) **1.** Engineering drawing
( ) **2.** Engineering specifications
( ) **3.** Performance data
( ) **4.** Literature on similar equipment
( ) **5.** Literature on operating principles of company products
( ) **6.** Literature on operating principles of other companies' products
( ) **7.** Technical data concerning newly designed electronic products
( ) **8.** Technical data concerning newly designed mechanical products
( ) **9.** Technical data concerning newly remodeled electronic products
( ) **10.** Technical data concerning newly remodeled mechanical products
( ) **11.** Other

To Be Organized in the Manner of

( ) **12.** Alphabetic order
( ) **13.** Chronological order
( ) **14.** Count, quantities
( ) **15.** Geographic order
( ) **16.** Numeric order
( ) **17.** Random order
( ) **18.** Rank
( ) **19.** Subject order
( ) **20.** Other

FOR A PRODUCT IDENTIFIED AS

( ) **21.** Operating manual
( ) **22.** Operating manual and parts list
( ) **23.** Technical report, progress
( ) **24.** Technical report, final
( ) **25.** Promotional brochure
( ) **26.** Display advertising
( ) **27.** Other

THE DATA TO BE DRAWN FROM

( ) **28.** Atlases
( ) **29.** Books
( ) **30.** Bulletins
( ) **31.** Calendars
( ) **32.** Cards
( ) **33.** Catalogs
( ) **34.** Correspondence
( ) **35.** Dictionaries
( ) **36.** Directories
( ) **37.** Handbooks
( ) **38.** Indexes
( ) **39.** Interviews
( ) **40.** Manuals
( ) **41.** Maps
( ) **42.** Microfiches
( ) **43.** Microfilms
( ) **44.** Pamphlets
( ) **45.** Pictures
( ) **46.** Prints, blue or white
( ) **47.** Records, log
( ) **48.** Reports, progress
( ) **49.** Reports, final
( ) **50.** Schedules
( ) **51.** Surveys, market
( ) **52.** Surveys, product
( ) **53.** Tapes
( ) **54.** Books, handbooks, and manuals
( ) **55.** Bulletins, handbooks, manuals, and pamphlets
( ) **56.** Bulletins and catalogs
( ) **57.** Microfiches and microfilm
( ) **58.** Records and reports
( ) **59.** Schedules and surveys
( ) **60.** Tapes and interviews
( ) **61.** Other

THE DEGREE OF DATA COMPLETENESS BEING

( ) **62.** All details available within the department
( ) **63.** All details available within the local institution
( ) **64.** All details available from all possible sources
( ) **65.** Most details available within the department
( ) **66.** Most details available within the local institution
( ) **67.** That information readily available within the department
( ) **68.** That information readily available within the institution
( ) **69.** That information readily available from all sources
( ) **70.** Completed information, omit work in progress
( ) **71.** Derive from current work in progress only
( ) **72.** Other

The Equipment Facilitation Being

( ) **73.** All useful equipment available
( ) **74.** All necessary equipment available
( ) **75.** Some useful equipment available
( ) **76.** Necessary equipment not available
( ) **77.** No special equipment is involved
( ) **78.** Other

TO BE REPORTED IN THE FORM OF

( ) **79.** Cards, index
( ) **80.** Cards, punched
( ) **81.** Computer print-out
( ) **82.** Prints, blue or white
( ) **83.** Wiring diagrams
( ) **84.** Tabular data
( ) **85.** Recording, tape
( ) **86.** Recording, video tape
( ) **87.** Manuscript
( ) **88.** Prints and wiring diagrams
( ) **89.** Computer print-out and tabular data
( ) **90.** Computer print-out, tabular data, and prints
( ) **91.** Computer print-out, tabular data, and wiring diagrams
( ) **92.** Tabular data and prints
( ) **93.** Other

QUALITY

( ) **94.** Completed with little assistance
( ) **95.** Completed only with much assistance
( ) **96.** Required rework prior to use
( ) **97.** Other

TIME ALLOTMENT FOR THE TASK BEING

( ) **98.** Unlimited
( ) **99.** Unspecified
( ) **100.** Preestimated at
( ) **101.** Predetermined at
( ) **102.** Other

THE LEVEL OF TASK FAMILIARITY BEING

( ) **103.** New task, never done before
( ) **104.** Task done once before
( ) **105.** Task done two-five times before
( ) **106.** Task done many times previously
( ) **107.** Task done regularly, constantly
( ) **108.** Other

DIRECTIONS (Task Sequence)	**CRITERIA**
The compiler executes the assignment in the following steps:	*Each step is correct in terms of all the following:*
1. Analyzes the task.	a. The objectives of the task were identified. b. The task conditions were delineated. c. Task restrictions were identified. d. The approach to the task was related to previous experience. e. Requirements of the completed project were determined. f. Notation was made of nature and origin of missing data.
2. Designs a plan for gathering data.	a. Task was divided into essential steps. b. Each step was completed in logical sequence. c. Known resources were identified. d. Resources not previously identified were located. e. Arrangements were made for access to resources made, materials, professional help, data-processing equipment, etc., as the case may necessitate. f. Provision was made for appropriate conditions of work while compiling the data.
3. Searches for and gathers missing data required.	a. All sources of data were explored. b. Omissions in data were detected. c. Additional needed data were sought. d. Validity of data was verified whenever possible. e. Implementation of data gathering was consistent with identified objectives. f. Identified concomitant information was noted. g. Data were assembled in form consistent with needs of assignment. h. Adequacy of data was considered.
4. Systematizes data in readiness for preparing the report.	a. Plan of report was formulated. b. Instruments were designed for conveying the concepts contained in the data. c. Data were tested using the designed instruments. d. Summarization of data was included in implementation design. e. Data were inventoried for omissions; corrections were made.
5. Records the data in accordance with planned format.	a. Data were presented according to objectives of task. b. Data were presented according to design of instruments determined. c. Implementation was consistent with restrictions imposed. d. Accuracy of data was verified consistent with sources available. e. Correctness of recording was verified by careful proofreading, cross-checking, and/or other suitable means.
6. Delivers the completed product.	a. Completed product was presented with appropriate transmittal. b. Explanation was made as requested. c. Consideration was given to concomitant activities desired by assignee.

Performance Goals in Trade and Industrial Education

Since trade and industrial teachers have strong backgrounds in the world of work, they understand the importance of clearly defining the jobs to be done. It is very easy for the T&I teacher to visualize an entire project within his trade and to mentally lay out the necessary materials and operational steps needed to accomplish the job. It is this ability coupled with trade skill that has given him the title of craftsman or journeyman.

It is considerably more difficult, however, to reduce these jobs to distinct operations that are teachable and may be practiced in an educational situation. Another important facet of this problem is the development of instructions into written form that is clear, concise, and understandable to the student. These written instructions, called performance goals, guide and direct the student's learning experience.

It is the purpose of this manual to help develop the skill of the T&I teacher in writing performance goals for his students that are clear and meaningful. We might compare this manual to a blueprint. By following the directions or steps carefully, the end product is assured. Perhaps a better comparison would be to compare the checklist of performance goals to a welder's scrap heap, or to a mechanic's junk box, or to a carpenter's scrap box. In each case, the total of unused material is not easily recognized as useful. The individual elements, however, may be separated, reassembled, and formalized into highly useful items.

The welder may go to his supply of material and, by carefully selecting a few parts, can assemble a working, useful piece of equipment. The carpenter can select pieces of wood and make a useful item. It is understood that the individual components of the junk box or scrap heap are in themselves not very useful. The object is to put them together in an organized manner.

You might prefer a stockroom with all new material, but performance goals are not new nor are they constructed from new items. They are made from a collection of old terms that, through organization, can be versatile and flexible in meeting existing educational needs of students under given conditions.

What the craftsman can develop out of the scrap pile will be limited by the material in the pile. Likewise boundary conditions are placed on the checklist in developing performance goals. The available equipment, space limitations, time availability, etc., will limit the goals that can be developed. These conditions are "built into" the checklist.

This manual on performance goal development will allow you to select from a variety of situations and conditions the exact pieces that you feel are needed to create a performance goal to suit an individual student under existing conditions.

Your trade has many exacting and complicated procedures that you found were not too difficult after they had been mastered. Likewise writing performance goals is a technique that can be mastered by following this manual and practicing the concepts developed. When you are able to place before each student a written goal to guide his learning experience and to indicate a standard of performance with boundary conditions listed, then you will have been able to synthesize your trade excellence into learnable units of instruction.

CONDITIONS Compiling by Architectural Draftsman

PROTOTYPES

Make a (21) 3-page (28) window schedule (2) for the house on those blueprints (13) by using our prepared forms (43). This is a rush job (10) and must be completed today (58).

Write a set of specifications (3) for the electrical components to be used in the business building shown on these blueprints (13). List the items by cost (23) on a rough draft (44) of about 5 sheets (28). Have it ready in 2 hours (58) for review.

GIVEN

( ) **1.** Set of working blueprints for
( ) **2.** Schedule for
( ) **3.** Specifications for
( ) **4.** Material take-off
( ) **5.** Construction schedule for
( ) **6.** Index blueprints
( ) **7.** Other

PURPOSE

( ) **8.** Familiarization
( ) **9.** Skill development
( ) **10.** Speed development
( ) **11.** Other

SOURCE

( ) **12.** Blueprints in storage
( ) **13.** Blueprints recently completed
( ) **14.** Blueprints being completed
( ) **15.** Construction log
( ) **16.** Building standards
( ) **17.** Reference material
( ) **18.** Company records
( ) **19.** Other

METHOD

( ) **20.** Alphabetical
( ) **21.** Numerical
( ) **22.** Sequential
( ) **23.** Cost
( ) **24.** Time
( ) **25.** Random
( ) **26.** Other

Equipment

( ) **27.** Cards
( ) **28.** Sheets
( ) **29.** Forms
( ) **30.** Calendar
( ) **31.** Pages
( ) **32.** Other

Equipment Facilitation Being

( ) **33.** All useful equipment available
( ) **34.** All necessary equipment available
( ) **35.** Same useful equipment available
( ) **36.** Necessary equipment not available
( ) **37.** No special equipment is involved
( ) **38.** Other

OUTPUT

( ) **39.** Complete sets
( ) **40.** Cards, index
( ) **41.** Calendar
( ) **42.** Manuscript
( ) **43.** Prepare forms
( ) **44.** Rough draft
( ) **45.** Other

QUALITY

( ) **46.** Completed with little or no supervision
( ) **47.** Completed with constant supervision
( ) **48.** Assist another in task
( ) **49.** Other

The Degree of Data Completeness Being

( ) **50.** All details available, organized
( ) **51.** All details available but not organized
( ) **52.** Most details given, a few to get
( ) **53.** Some details given, much to get
( ) **54.** No details ready, all to obtain
( ) **55.** Other

TIME

( ) **56.** Unlimited or unspecified
( ) **57.** Preestimated
( ) **58.** Predetermined
( ) **59.** Other

ENABLING BEHAVIOR

( ) **60.** New task, never done before
( ) **61.** Task done only a few times before
( ) **62.** Task done many times previously
( ) **63.** Task done regularly, constantly
( ) **64.** Other

DIRECTIONS (Task Sequence)	**CRITERIA**
The student completes the assignment by executing the following tasks:	*Each step is correct in terms of all the following:*
1. Obtains working prints.	a. Verified number needed. b. Checked proper set.
2. Reviews project.	a. Noted information available.
3. Outlines procedures.	a. Followed assignment. b. Noted special needs.
4. Secures needed materials.	a. Checked assignment.
5. Checks with supervisor.	a. Received final approval to continue.
6. Performs assignment.	a. Followed outline.
7. Evaluates project.	a. Self-evaluation. b. Time evaluation. c. Assignment completed.

CONDITIONS

Power Sawing in Carpentry

PROTOTYPES

Take a piece of plywood (9) from the stockroom (19) and bevel (6) the edges at 45° as shown on this drawing (32). It must be at least as big as the drawing. Use the 10" table saw (25).

Take this blueprint (30) and make 5 tenons (5) from 3" hardwood (12) you can get from the stockroom (19). Use the 8" radial arm saw (24).

Take the 7" power hand saw (28) and rip (1) a 2" x 96" (29) piece from this customer's (20) 4' x 8' x ½" piece of plywood (9).

Get a piece of 1' x 2" x 16' pine (11) and cut it into 6 equal pieces as shown on this sketch (31). Use the 8" radial arm saw (24) and make sure the pieces are accurate. The customer wants these in 15 minutes (47).

GIVEN

( ) **1.** Rip
( ) **2.** Crosscut
( ) **3.** Dado
( ) **4.** Rabbet
( ) **5.** Martise tenon
( ) **6.** Bevel
( ) **7.** Miter
( ) **8.** Other

Material

( ) **9.** Plywood
( ) **10.** Softwood 1 inch or less
( ) **11.** Softwood over 1 inch
( ) **12.** Hardwood over 1 inch
( ) **13.** Hardwood 1 inch or less
( ) **14.** Other

PURPOSE

( ) **15.** Familiarization
( ) **16.** Practice of skill
( ) **17.** Skill development
( ) **18.** Other

SOURCES

( ) **19.** Stockroom
( ) **20.** Customer
( ) **21.** Must be obtained
( ) **22.** Other

EQUIPMENT

( ) **23.** 8" table saw
( ) **24.** 8" radial arm saw
( ) **25.** 10" table saw
( ) **26.** 10" radial arm saw
( ) **27.** 6" power hand saw
( ) **28.** 7" power hand saw
( ) **29.** Other

Instructions

( ) **30.** Blueprint
( ) **31.** Sketch
( ) **32.** Drawing
( ) **33.** Verbal
( ) **34.** Other

OUTPUT

( ) **35.** Make one cut in one board
( ) **36.** Make several cuts in one board
( ) **37.** Make one cut on several boards
( ) **38.** Make several cuts on several boards
( ) **39.** Other

QUALITY

( ) **40.** As shown on instructions
( ) **41.** Plus or minus $\frac{1}{32}$ inch
( ) **42.** Plus zero, minus $\frac{1}{32}$ inch
( ) **43.** Plus $\frac{1}{32}$ inch, minus zero
( ) **44.** Other

TIME ALLOTMENT FOR THE TASK BEING

( ) **45.** Unlimited or unspecified
( ) **46.** Preestimated
( ) **47.** Predetermined
( ) **48.** Other

ENABLING BEHAVIOR

( ) **49.** New task, never done before
( ) **50.** New task, done 2 or 3 times before
( ) **51.** Task done many times before
( ) **52.** Done frequently, constantly
( ) **53.** Other

DIRECTIONS (Task Sequence)	CRITERIA
The student completes the assignment by executing the following tasks:	*Each step is correct in terms of all the following:*
1. Secures or identifies equipment necessary.	**a.** Checked availability. **b.** Checked for proper operation. **c.** Checked for safety.
2. Reviews operational instructions.	**a.** Outlined procedure. **b.** Clarified any questions.
3. Selects materials.	**a.** Determined source and location. **b.** Identified proper material. **c.** Obtained sufficient quantity.
4. Adjusts equipment as instructed.	**a.** Checked tolerance. **b.** Identified proper material. **c.** Obtained sufficient quantity.
5. Performs operation.	**a.** Repeated as directed.
6. Evaluates.	**a.** Time expended. **b.** Accuracy. **c.** Quality.

CONDITIONS

Eliciting Automotive Information

PROTOTYPES

Take this job-order form and complete (28) it for that automobile (2) that just came in for repairs (7). You will find the registration (26) in the glove box.

Mr. Jones (1, 10) will be in at 2 p.m. (34). Talk (15) to him about his car (2) and try to determine (15) if this trouble has happened before, when, and where. Be sure to make notes (20) for the mechanic.

This vehicle (21) has a miss in the engine at 60 RMH. Take it out for a run (17) and diagnose (12) the trouble. Tell (24) me where you think the trouble may be located.

We have completed the work on Mr. Jones' (10) car (2). When he comes in, get (15) the necessary data for our follow-up (6) records (5). Use the forms (26) in this notebook (20) and leave them with the office. It should take you only 15 minutes (33).

GIVEN
( ) **1.** Customer
( ) **2.** Automobile
( ) **3.** Malfunctions
( ) **4.** Other

PURPOSE
( ) **5.** Recording office records
( ) **6.** Follow up
( ) **7.** Repair and/or adjust
( ) **8.** Analysis
( ) **9.** Other

SOURCES
( ) **10.** Customer
( ) **11.** Auto registration
( ) **12.** Diagnosis
( ) **13.** Analysis
( ) **14.** Other

METHODS
( ) **15.** Questioning
( ) **16.** Observation
( ) **17.** Road Test
( ) **18.** Instrumentation
( ) **19.** Other

Equipment
( ) **20.** Notebook
( ) **21.** Vehicle
( ) **22.** Test instruments
( ) **23.** Other

OUTPUT
( ) **24.** Verbally
( ) **25.** Manuscript
( ) **26.** Forms
( ) **27.** Other

QUALITY
( ) **28.** Completed with little or no supervision
( ) **29.** Completed with constant supervision
( ) **30.** Assist another in task
( ) **31.** Other

TIME ALLOTMENT FOR THE TASK BEING
( ) **32.** Unlimited or unspecified
( ) **33.** Preestimated at
( ) **34.** Predetermined at
( ) **35.** Other

ENABLING BEHAVIOR
( ) **36.** New task, never done before
( ) **37.** Task done only a few times before
( ) **38.** Task done many times previously
( ) **39.** Task done regularly, constantly
( ) **40.** Other

DIRECTIONS (Task Sequence)	**CRITERIA**
The student completes the assignment by executing the following tasks:	*Each step is correct in terms of all the following:*
1. Identifies source.	a. Greeted customer. b. Identified vehicle.
2. Identifies himself.	a. For customer's peace of mind.
3. Establishes need for information.	a. Explained purpose. b. Verified requirement.
4. Records data.	a. Recorded accurately. b. Wrote neatly and legibly.
5. Delivers data.	a. Reported to required place. b. Reported data gained.
6. Gives evaluation.	a. Evaluated project. b. Evaluated self action. c. Determined further action.

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